Roben-3

User Manual

Thunderbolt™ to PCIe Expansion & PCIe to PCIe Expansion

ROBEN-3

Models
3TX, 3TS, 3TM

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Preface

Advisories

Five types of advisories are used throughout this manual to provide helpful information, or to alert you to the potential for hardware damage or personal injury.

NOTE
Used to amplify or explain a comment related to procedural steps or text.

IMPORTANT
Used to indicate an important piece of information or special “tip” to help you

CAUTION
Used to indicate and prevent the following procedure or step from causing damage to the equipment.

WARNING
Used to indicate and prevent the following step from causing injury.

DANGER or STOP
Used to indicate and prevent the following step from causing serious injury or significant data loss

Disclaimer: We have attempted to identify most situations that may pose a danger, warning, or caution condition in this manual. However, Magma does not claim to have covered all situations that might require the use of a Caution, Warning, or Danger indicator.

Safety Instructions

Always use caution when servicing any electrical component. Before handling the Magma Expansion chassis, read the following instructions and safety guidelines to prevent damage to the product and to ensure your own personal safety. Refer to the "Advisories" section for advisory conventions used in this manual, including the distinction between Danger, Warning, Caution, Important, and Note.

- Always use caution when handling/operating the computer. Only qualified, experienced, authorized electronics personnel should access the interior of the computer and expansion chassis.

WARNING
Never modify or remove the radio frequency interference shielding from your workstation or expansion unit. To do so may cause your installation to produce emissions that could interfere with other electronic equipment in the area of your system.

When Working Inside a Computer

1. Before taking covers off a computer, perform the following steps:
2. Turn off the computer and any peripheral devices.
3. Disconnect the computer and peripheral power cords from their AC outlets or inlets in order to prevent electric shock or system board damage.

In addition, take note of these safety guidelines when appropriate:

- To help avoid possible damage to systems boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

CAUTION
Do not attempt to service the system yourself except as explained in this manual. Follow installation instructions closely.

Protecting Against Electrostatic Discharge

Electrostatic Discharge (ESD) Warning
Electrostatic Discharge (ESD) is the enemy of semiconductor devices. You should always take precautions to eliminate any electrostatic charge from your body and clothing before touching any semiconductor device or card by using an electrostatic wrist strap and/or rubber mat.

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedures to reduce the risk of damage to components. Magma strongly encourages you to follow proper ESD procedures, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's anti-static packaging material until you are ready to install the component in a computer. Just before unwrapping the anti-static packaging, be sure you are at an ESD workstation or are grounded.
- When transporting a sensitive component, first place it in an anti-static container or packaging.
- Handle all sensitive components at an ESD workstation. If possible, use anti-static floor pads and workbench pads.
- Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.

Chapter 1 Introduction

Roben-3 Thunderbolt

The ROBEN-3 is available in THREE model configurations offering unique features for full customization. The ROBEN-3 basic model offers the potential of (2) 5.25-in expansion bays, while the ROBEN-3 storage model offers (8) 2.5-inch hot swappable bays, and finally the ROBEN-3 Mac Mini version allows for a direct integration of an Apple Mac Mini, making it the most versatile Thunderbolt™ product ever offered by Magma.

The ROBEN-3 has a rack-mountable aluminum chassis designed for integrated removable storage expansion, with room for up to 8 hot pluggable 2.5" SSD, SAS or SATA hard drives. This added power can be channeled through lightning fast Thunderbolt technology at 10Gbps, with the option of 20Gbps bandwidth with the roll-out of Thunderbolt 2 capable devices like the new Mac Pro. With 3-Slot PCIe and internal storage expansion, ROBEN-3 enables the serious audio professional to transform their computer into a powerful workstation - a sidekick for the creative hero.

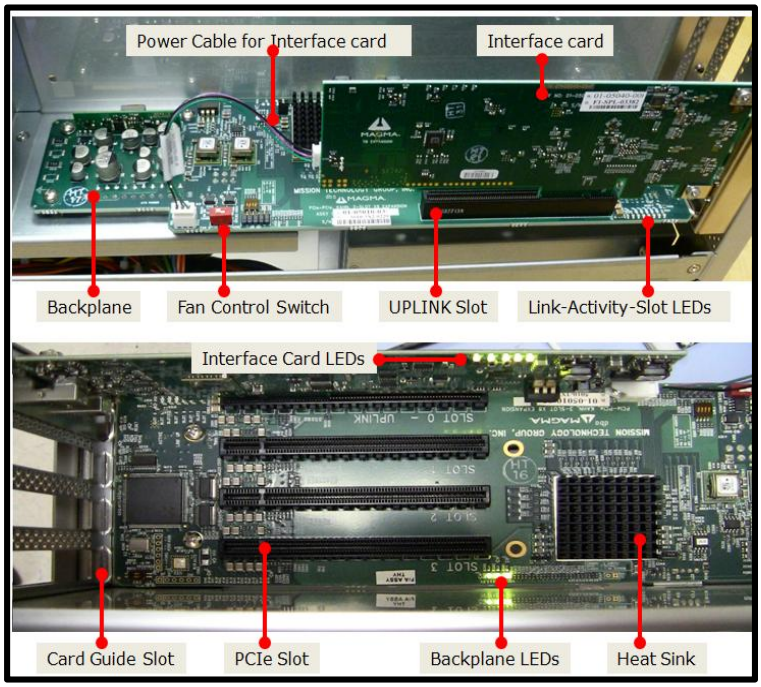
Add a Mac mini

ROBEN-3 will also allow you the option to host a Mac mini within the chassis creating an integrated rackmount server with direct Thunderbolt connection to 3-slot PCIe expansion slots. Mac mini external connectivity is provided through the front and rear panels, including a secure I-Lok housing allowing you to lock your valuable application or plug-in licenses right to the chassis.

3 Variants of Roben-3 Thunderbolt

Product Name	Description
3TX	3 Slot Thunderbolt (Expansion Only)
3TS	3 Slot Thunderbolt (Storage)
3TM	3 Slot Thunderbolt (Mac mini)

Expansion Board and Backplane



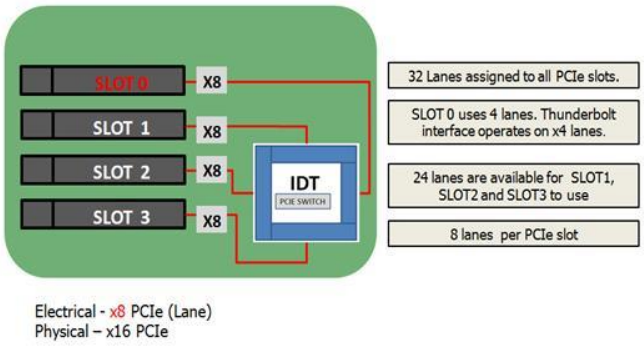
PCI Express Features

- Supports three full-length cards
- Physical connectors are x16
- Each slot is x8 Gen 2 (or Gen 3)

Thunderbolt Features

- High-speed Thunderbolt connection – Thunderbolt™ 1: 10Gbps , Thunderbolt™ 2: 20Gbps
- Dual channel, with support for PCIe and DisplayPort protocols
- Automatic power-up control by computer
- Daisy-chain or end-point device

24 Lanes Available for 3 PCIE slots



Roben-3 Thunderbolt Specifications

Item	Description
Technology	PCI Express Bus Specification Revision 2.0 PCI Local Bus Specification Revision 2.3 PCI Bridge Architecture Revision 1.2
Backplane	(3) available full length/full height expansion slots, X8 PCIe Gen 2.0 Electrical - x8 PCIe Physical – x16 PCIe
Thunderbolt™ 1, Interconnect Bandwidth	10Gbps (1.25 GB/s) Bi-directional
Thunderbolt™ 2, Interconnect Bandwidth	20Gb/s (2.25 GB/s) Bi-directional
Host Connection	Host Side: Any Thunderbolt equipped computer with one or more Thunderbolt ports Expansion side: Two Thunderbolt connectors supporting one host connection and one daisy chain out port / display port.
Cable	Thunderbolt cable sold separately
Enclosure	2U Aluminum Desktop – Black 14.25" Wide x 3.48" High x 17" Deep (363mm x 88.4mm x 432mm) 8.5 lbs or 3.6Kg Tool-less cover removal. White power-on indicator front panel light
System Cooling	One 80mm 33.4 CFM Expansion Cards/Backplane Fan Variable speed thermistor control option (or full speed)
Power Supply for Roben-3TS & 3TX	520 W standard, 100-240V, 50-60Hz Power Input Four 4-pin Molex Connector Two 6-pin + PCIe connector Input Frequency: 50-60HZ DC Output: 540 Watts Max +12V 43A -12V .5A +5V 20A +3.3V 20A +5Vsb 2.5A Total on +3.3V and 5V must not exceed 100W
Power Supply for Roben-3TM	250-Watt power Supply AC Input: 100-240VAC Input Frequency: 50-60HZ Input Current: 8.0A Max DC Output: 540 Watts Max +12V 43.0A maximum -12V .5A maximum +5V 20.0A maximum +3.3V 20.0A maximum +5Vsb 2.5A maximum Total power on +3.3V and 5V must not exceed 100W max
Environmental	Ambient Temperature 0° to 50° C**Storage Temperature -55° to 125° C Relative Humidity 5% to 85% non-condensing
MTBF	35k hours
Regulatory Compliance	FCC Class A Verified CE RoHS Compliant
Thunderbolt™ 1, Supported OS	Windows 7, 8, Server and Mac 10.6.8 or higher
Thunderbolt™ 2, Supported OS	Windows 7, 8, Server and Mac 10.9.8 or higher (10.8 below not supported)
Warranty	30 day money back guarantee. 1 Year Return to factory

Pre-Installation Information

Before using the Magma Expansion chassis you should perform the following steps:

- Inventory the shipping carton contents for all of the required parts
- Gather all of the necessary tools required for installation
- Read this manual

Tools Required for Installation

To complete the installation of the Magma product you will need a Phillips-head screwdriver and ESD wrist strap to prevent electrostatic discharge.

Chapter 2 Hardware Installation

The following steps will guide you through the installation of your Magma Expansion System.

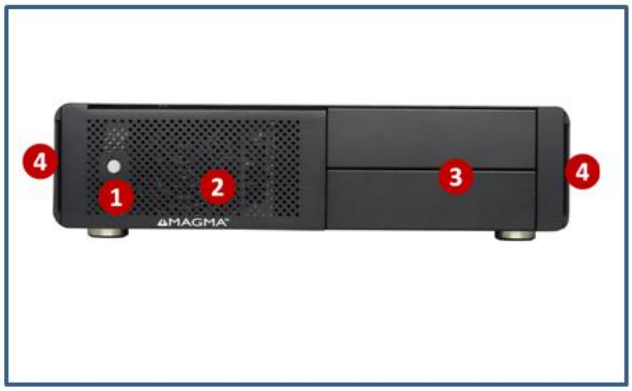
CAUTION
Hardware installation shall be performed only by qualified service personnel.

Electrostatic Discharge (ESD) Warning
All add-in cards are susceptible to electrostatic discharge. When moving cards, it is best to carry the cards in anti-static packaging. If you need to set a circuit card down, be sure to place it inside or on top of an anti-static surface. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

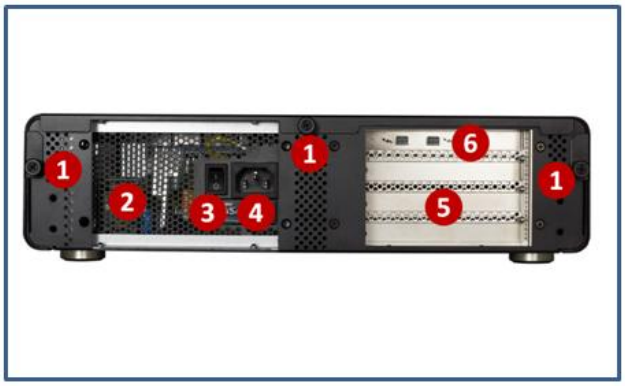
WARNING
High voltages are present inside the expansion chassis when the unit's power cord is plugged into an electrical outlet. Disconnect the power cord from the AC outlet before removing the enclosure cover. Turning the system power off at the power on/off switch does not remove power to components. High voltage is still present.

CAUTION
Before touching anything inside the enclosure, move to an ESD station and follow proper ESD procedures. Failure to do so may result in electrostatic discharge, damaging the computer or its components. For more information, see "Protecting Against Electrostatic Discharge" in the Preface.

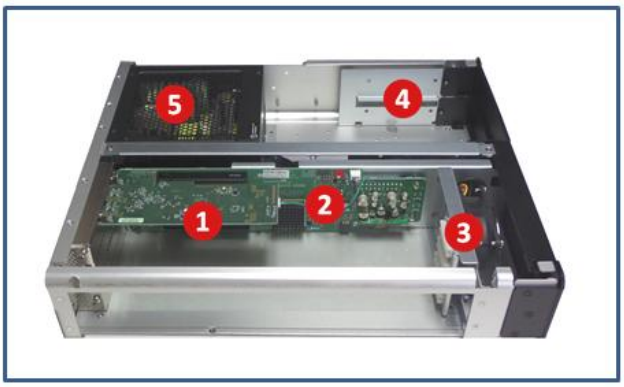
Roben-3TX (3 Slot Thunderbolt – Expansion Only)



Item #	Description
1	Front LED
2	Air Ventilation
3	Storage Bay
4	Rack Ears Mounting Section



Item #	Descripton
1	Thumb Screws
2	Fanless Power Supply
3	PSU ON/Off Switch
4	Power Cord Socket
5	Card Slot Opening
6	Thunderbolt Ports



Item #	Description
1	Thunderbolt Interface Card
2	Expansion Backplane
3	Front Fan
4	Drive Mounting Bay
5	Fanless Power Supply

Parts List

Qty	Item
1	Power Cord
1	Thunderbolt Interface Card (Installed)
1 set	Rackmount Kit (Optional). For Roben-3 Rackmount model, see page 53

Thunderbolt cable is not included

Installation-Procedures Overview

Below is the concise version on how to set up the Roben-3TX

1. Open Enclosure
2. Install Thunderbolt Interface card(if not installed)
3. Install PCIe cards (see notes below)
4. Attach Power Cord
5. Connect to Electrical Outlet
6. Plug in Thunderbolt Cable
7. Power on Computer
8. Hardware Check
9. Verify Installation (via Operating System)

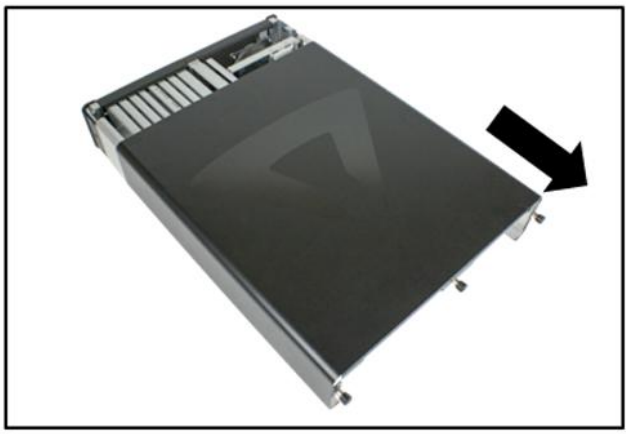
NOTE
It is highly recommended to install 3rd party PCI-E cards / High Power PCIe cards after you have verified and tested that the Magma expansion chassis is functional and free of hardware failures.

When installing 3rd Party PCIe card, start with one card first just to see if there are any software and/or hardware issues or incompatibility problems that may occur. This way you can troubleshoot the problem more easily and efficiently. If everything works well and there are no configuration issues, you can proceed with the installation of the remaining 3rd party PCIe cards.

Always refer to or read "3rd party manufacturer installation guide" for further instructions

Open Enclosure

Loosen the thumbscrew that retains the top cover of the chassis and slide the lid towards you as shown below:



Install Thunderbolt Interface card

The thunderbolt Interface card is already installed for this model. No need to install the Thunderbolt Interface card.

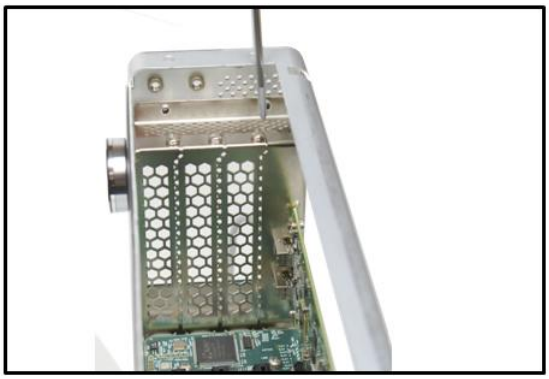
If you need to replace or install a Thunderbolt Interface card, go to Thunderbolt Interface card Installation on page 27.

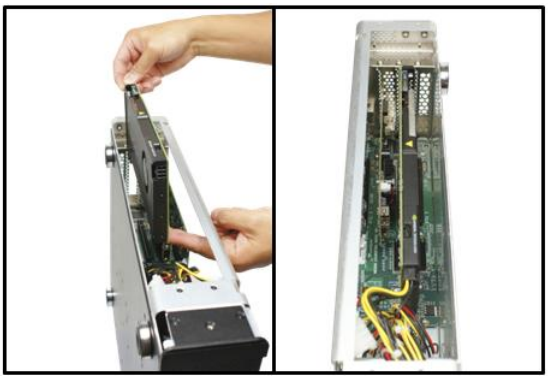
Install PCIe Cards

Some card manufacturers recommend that you install their software driver prior to installing the card. If this is the case, be sure to install the card driver before connecting Roben-3to the computer.

- Slot 3 accepts all types of PCIe cards x1, x2, x4, x8 or x16
- Slot 2 accepts all types of PCIe cards x1, x2, x4, x8 or x16
- Slot 1 accepts all types of PCIe cards x1, x2, x4, x8 or x16 (next to Thunderbolt interface card)

Remove slot covers and install PCIe cards.



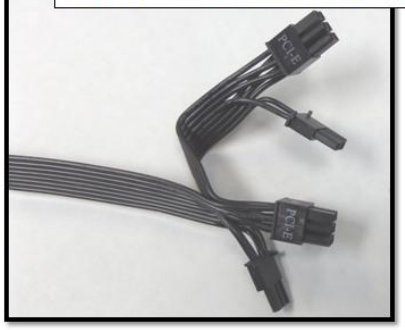


Make sure that all cards are fully seated in their connectors. When correctly seated, there will be a firm resistance when you pull up gently on the card. To keep the cards in place, secure them in the enclosure with their retaining screws. After securing the cards verify that they do not touch each other.

Auxiliary Power Connectors

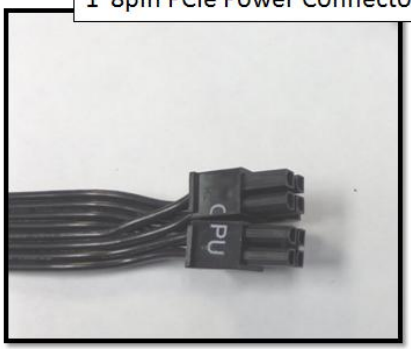
Some PCIe cards require extra power. Roben-3TX and Roben-3TS power supplies provide the following power connectors / adapters (see pictures below). There are five 4-pin Molex AUX power connectors that can be used for providing extra power to cards. And two (6+2 pin) PCIe connectors for GPUs.

2 (6+2) PCIe Power Connectors



5 4pin Molex Power Connectors

1 8pin PCIe Power Connector



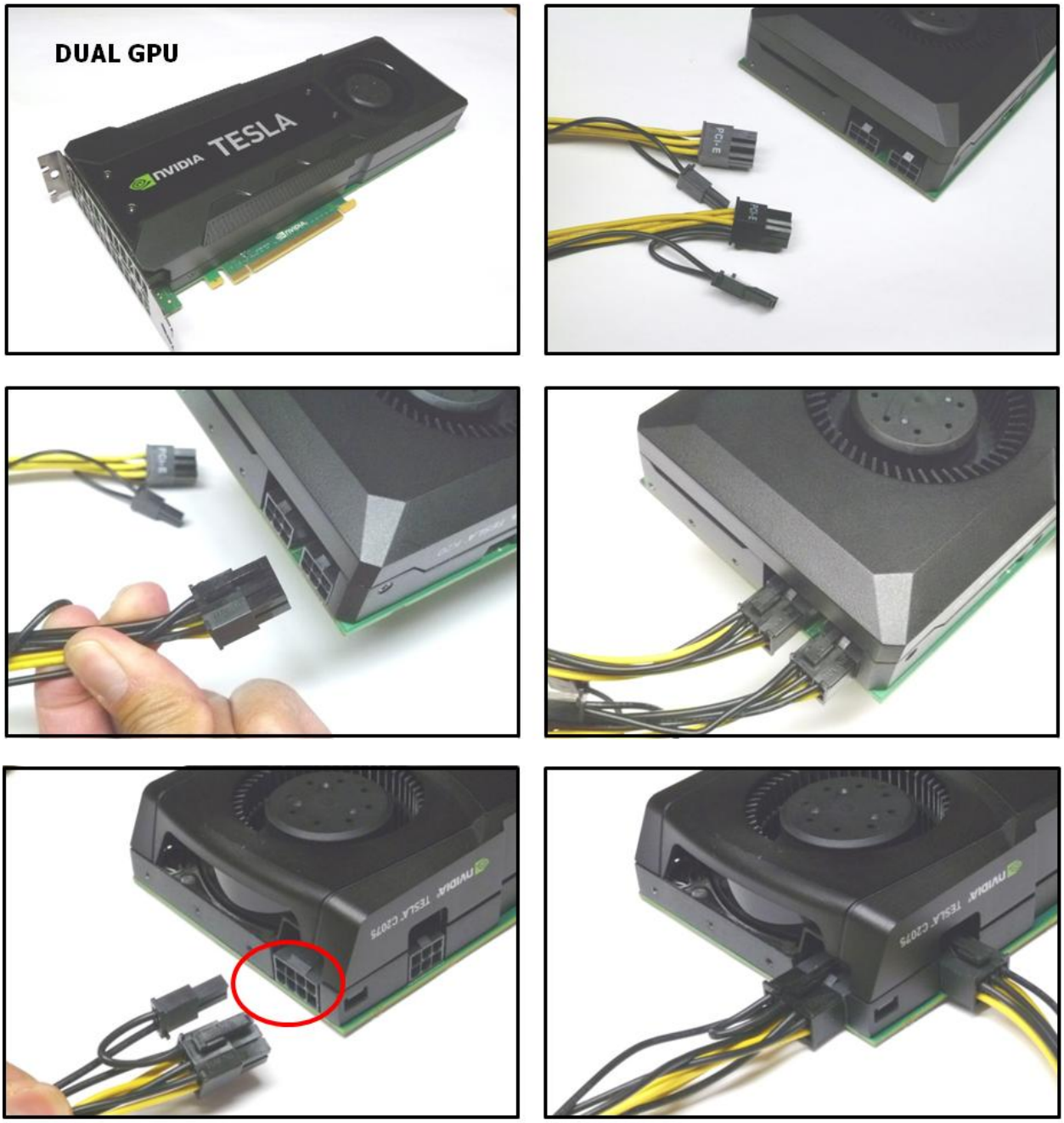
6 SATA Power Connectors

One 6 inch 5.25 Male to 3.5 Female Internal Power Adapter

High Power PCIe card installation

High Power PCIe cards also known as High End PCIe cards such as GPUs and other similar type of card requires an additional power (or AUX Power) to operate. Most of these High power PCIe cards have an auxiliary power adapter cables that are included with it when you buy them. If it is not available, there are 6-pin PCIE connectors built in to the power supply that can be used to provide power to your GPUs or High Power PCIe cards.

Other High power PCIe cards may use different Aux power adapter connectors. You can connect them to any of the 4-pin Molex connectors available on the power supply.



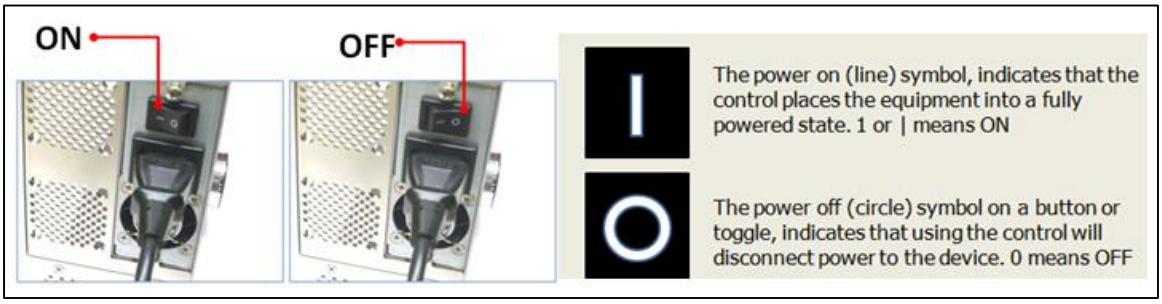
Other GPUs or PCIe cards may require to use 8 pin connectors , see pictures above

Attach Power Cord

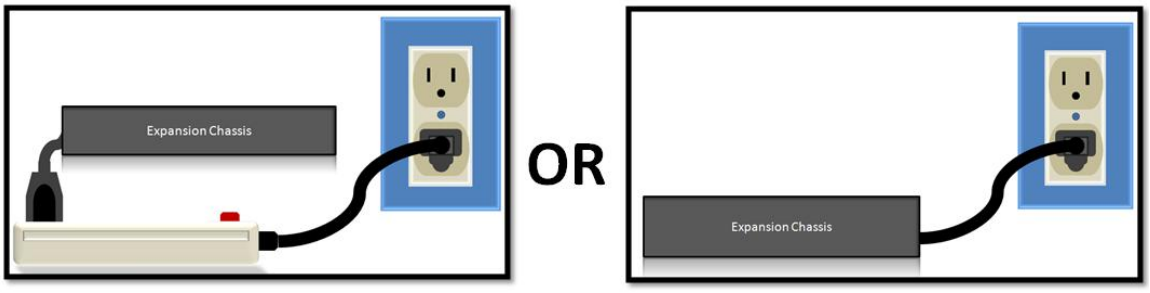
NOTE
If at all possible, plug all power cords from the expansion chassis and your host computer into a shared power strip, preferably one that has surge and noise suppression circuitry built into it.

1. Plug in power cord to Roben-3. Make sure the Power Switch on the power supply is turned OFF.

2. Turn power supply switch to ON position.
3. Two green LED on the Interface card are illuminated. No LEDs are illuminated on the backplane.


ON
OFF
The power on (line) symbol, indicates that the control places the equipment into a fully powered state. 1 or | means ON
The power off (circle) symbol on a button or toggle, indicates that using the control will disconnect power to the device. 0 means OFF

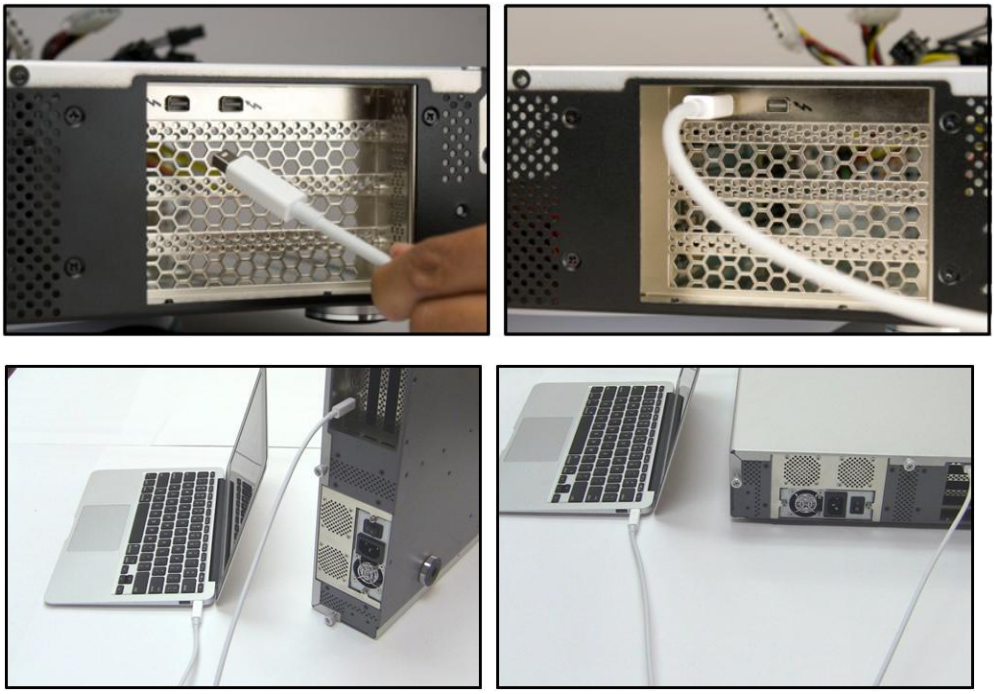
Connect to Electrical Outlets



Be cautious, practice safe and correct methods when powering up your expansion unit. Before powering ON the system make sure all PCIe cards are seated properly into the card slots.

Connect Thunderbolt Cable

Attach Thunderbolt cable into either top or bottom port on the Roben-3. Plug in Display Monitor, DVI/HDMI, or Display. If no display will be used, you can daisy chain other Thunderbolt devices. Plug in the other end of the Thunderbolt cable to the Thunderbolt port on the computer.



Connect the Thunderbolt cable to one of the ports on the back of Roben-3 and connect the other end of the cable to the Thunderbolt port on the computer. You can use the available Thunderbolt port for attaching a Thunderbolt device or an external display monitor.

Powering On and Off the Expansion Unit

Roben-3 will automatically turns ON when the computer is turned ON. A White light located on the front panel will shine when the expansion chassis is ON. Roben-3 will automatically turn OFF when the computer is turned OFF or goes into Standby mode. If either end of the Thunderbolt cable is removed while the system is ON, the expansion chassis will automatically power down.

The White light on the front of Roben-3 is not an ON (On-off push button), it simply indicates whether the chassis is on or off. If either end of the Thunderbolt cable is disconnected, Roben-3 will automatically turn off.

Verify Hardware Connection

Check the status of the LEDs on the Interface cards and backplane to verify good connection or link between your host computer and expansion unit

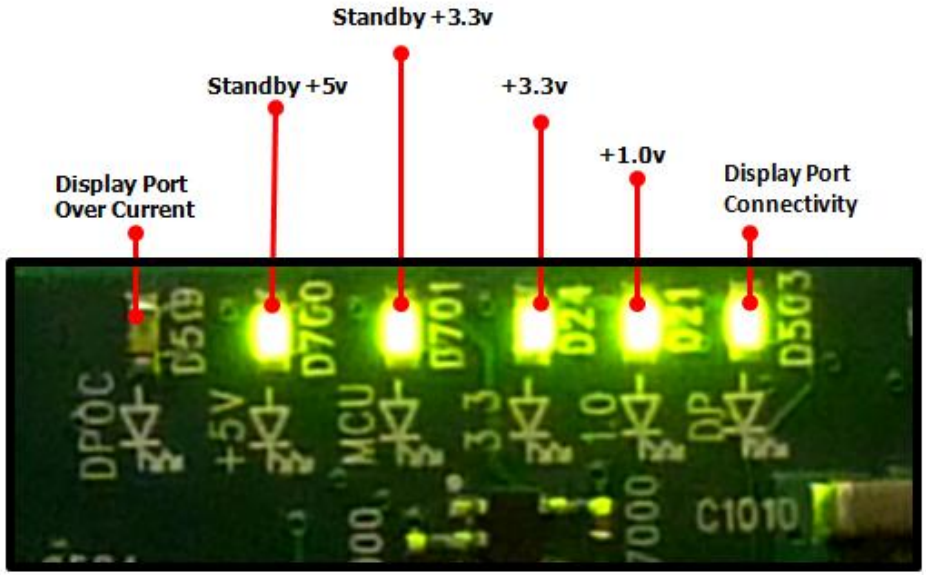
1. Thunderbolt™ 1 interface card: 5 solid green LEDS are illuminated and three solid green LEDs on the backplane. For more details see "Thunderbolt™ 1 Interface Card" below.
2. Thunderbolt™ 2 Interface Card: 7 solid green LEDs are illuminated and 3 solid green LEDs on the backplane. For more details go to "Thunderbolt™ 2 Interface Card on page 21".

Thunderbolt™ 1 Interface Card & LEDs

When the Thunderbolt™ 1 Interface card is fully operational and with an external Display device attached, 5 green LEDs are illuminated (solid green), see FIGURE T1-A .

IMPORTANT
If you are only seeing Two Green LEDs that are illuminated on the Thunderbolt Interface card after the Magma Roben-3 is turned on, this indicates that there a hardware failure within your expansion unit. Check your Thunderbolt cable, make sure it is connected firmly and the Thunderbolt Interface card is seated in the PCIE slot properly.

FIGURE T1-A



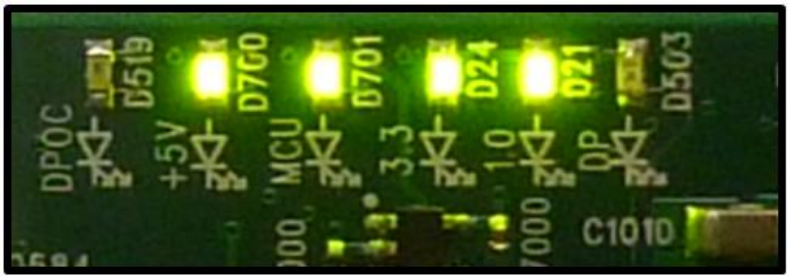
LED	Description
Display Port Over Current	comes on when there is a power problem on the interface card
+5v Standby & +3.3v standby	are illuminated when the power cord is attached to expansion unit
+3.3v and 1.0v	are illuminated when the expansion chassis turns on
Display Port Connectivity	comes on when an external display is attached to Thunderbolt port of the expansion unit

Important

IMPORTANT
If there is no Display Monitor attached to Thunderbolt™ 1 Interface card it would only show 4 illuminated solid GREEN LEDs, this is normal.

See picture below.

FIGURE T1-B



Important

IMPORTANT
LEDs D700 and D701 on the Thunderbolt™ 1 Interface card are illuminated when power cord is attached to expansion unit. This means the expansion unit is on standby-mode.

See picture below.

FIGURE T1-C

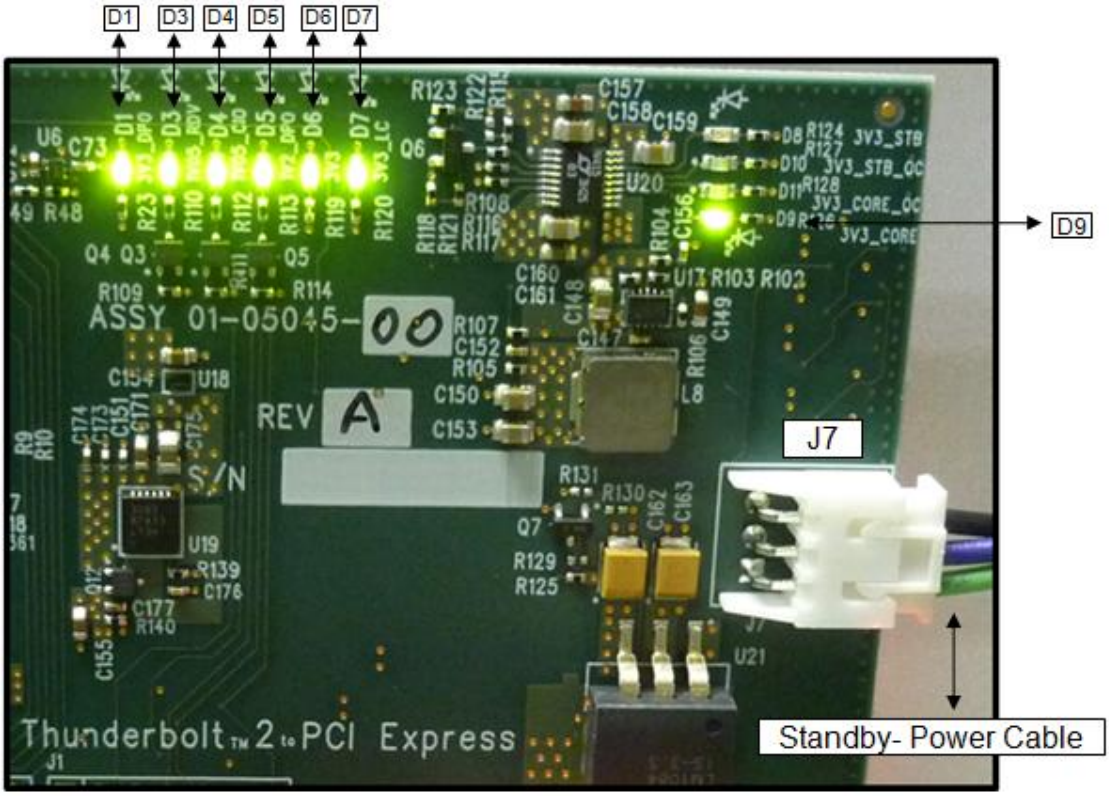
Thunderbolt™ 2 Interface Card & LEDs

There are 10 LEDs on the Thunderbolt™ 2 Interface card. These LEDs are very essential in checking the power status of the board. It also serves as failure indicators and helps in troubleshooting hardware problems.

When the Thunderbolt™ 2 Interface card is fully operational and with an external Display device attached , 7 solid Green LEDs (D1,D3,D4,D5,D6,D7 and D9) are illuminated. See picture on FIGURE T2-A.

If you don't have an external display attached, only 5 Green LEDs are illuminated. See FIGURE T2-B.

FIGURE T2-A



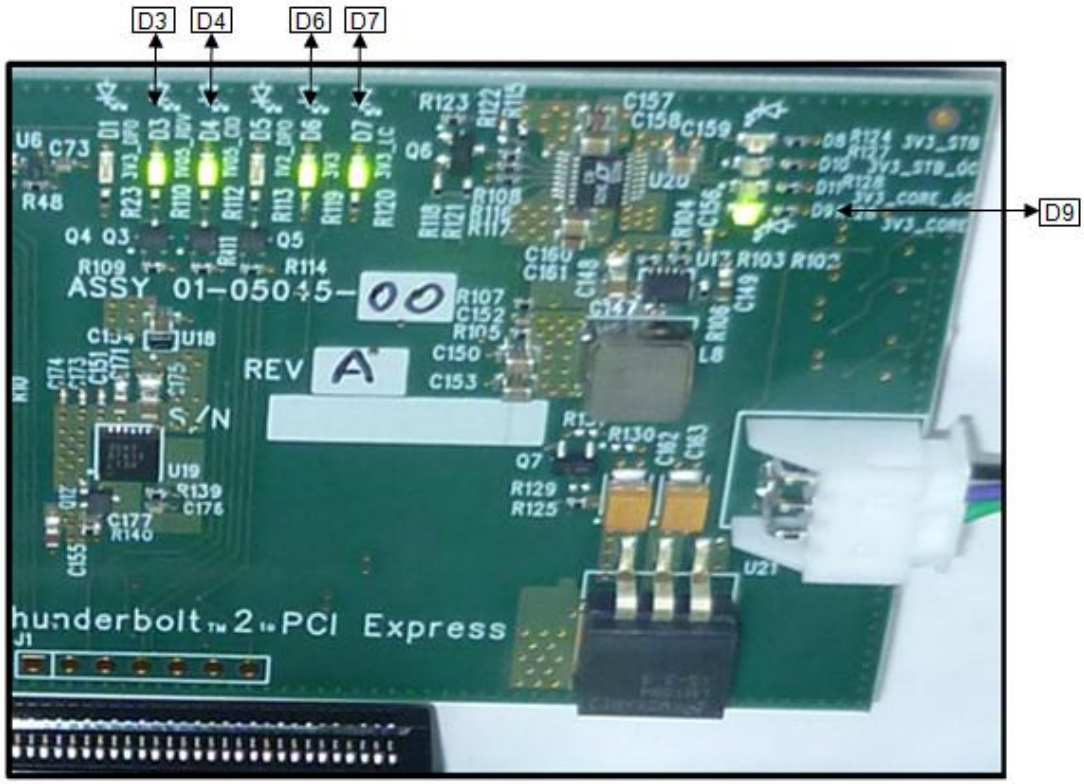
If the above LEDs are not coming ON, it is an indication that your board is not getting power or the board is faulty or defective. Please check the following:

1. Standby-power cable is firmly connected to Thunderbolt™ 2 Interface card power connector (J7). See page 25.
2. Thunderbolt™ 2 Interface card is seated all the way in the PCIe slot. Try reseating the card in the PCIE slot.

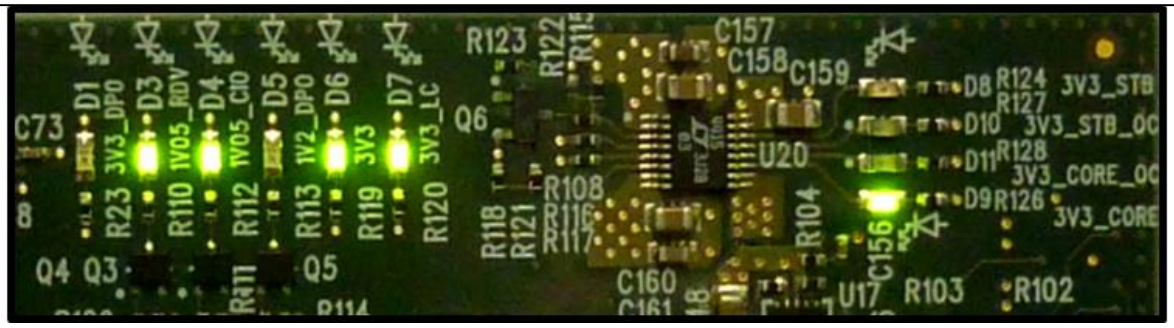
If there is no Display Monitor attached to Thunderbolt™ 2 Interface card it would only show 5 illuminated solid GREEN LEDs (D3, D4,D6,D7 and D9), this is normal. See FIGURE T2-B below.

If you reconnected an external Display device, LEDs D1 and D5 should come on immediately. Otherwise, the Thunderbolt™ 2 Interface card is not properly working or the monitor DisplayPort cable is faulty.

FIGURE T2-B

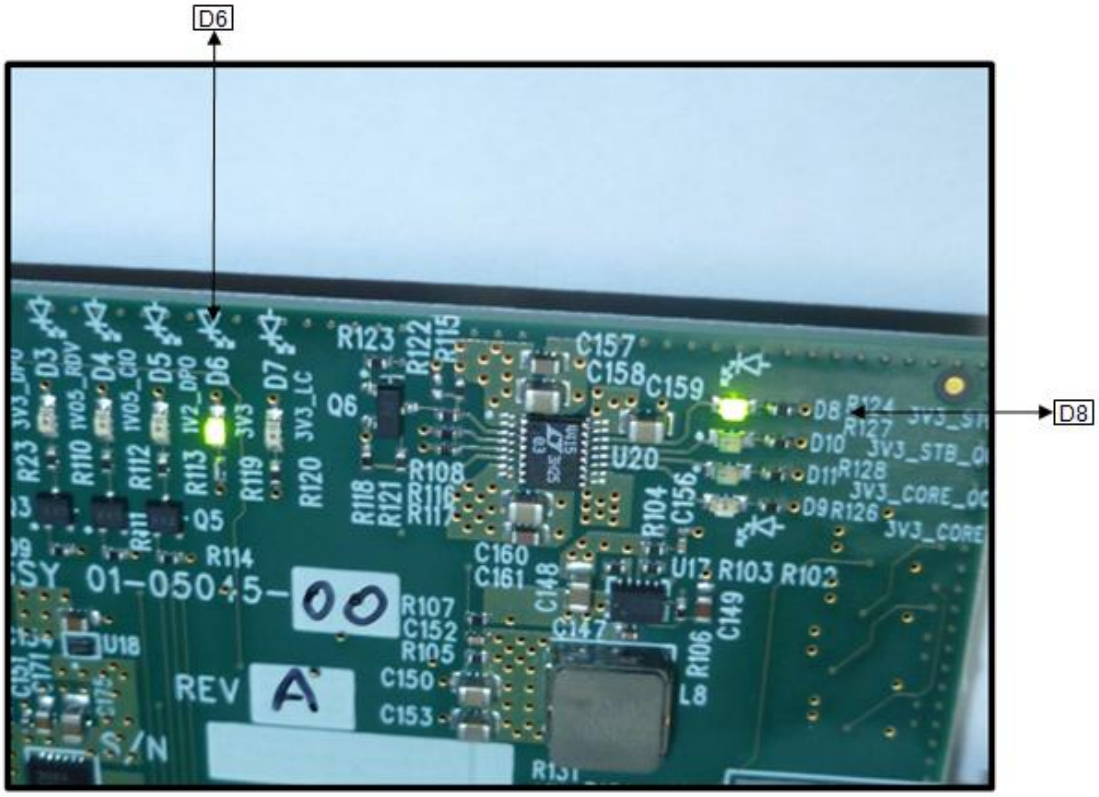


Thunderbolt™ 2 Interface Card LEDs: Functional Mode - without external display device attached



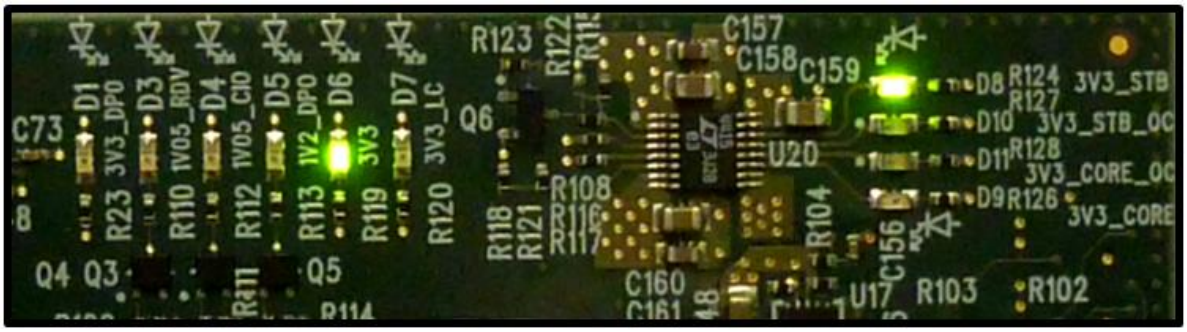
LEDs D6 and D8 are illuminated when power cord is attached to expansion unit. This means the expansion unit is on standby-mode. The magma device is" switched off" on the electronic interface (but it draws some power). On standby mode the Magma is not performing its primary function; it is waiting to be activated by a remote power or remote controller. See picture below.

FIGURE T2-C



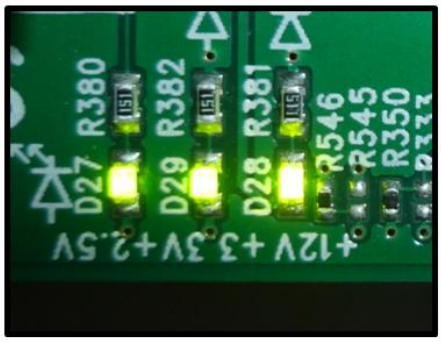
If the above LEDs are not coming ON, please check the power standby cable make sure it is firmly connected to Thunderbolt Interface card power connector (J7). See page 25.

Thunderbolt™ 2 Interface Card LEDs: Standby-Mode



Backplane & LEDs

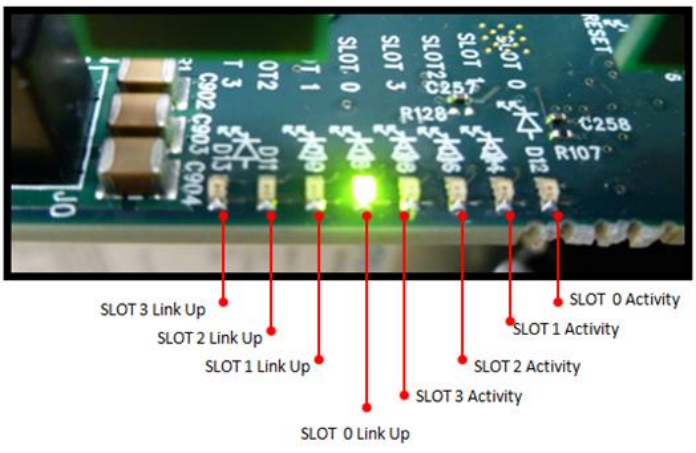
A functional / operational backplane will illuminate three solid green LEDs.



LED	Description
+12V, +3.3V and +2.4	are illuminated when the expansion chassis turns on

IMPORTANT
If you are only seeing One or Two Green LEDs that are illuminated on the Backplane after the Magma Roben-3 is turned on, this indicates that there a powers supply problem or the standby-power cable is not attached to the interface card.

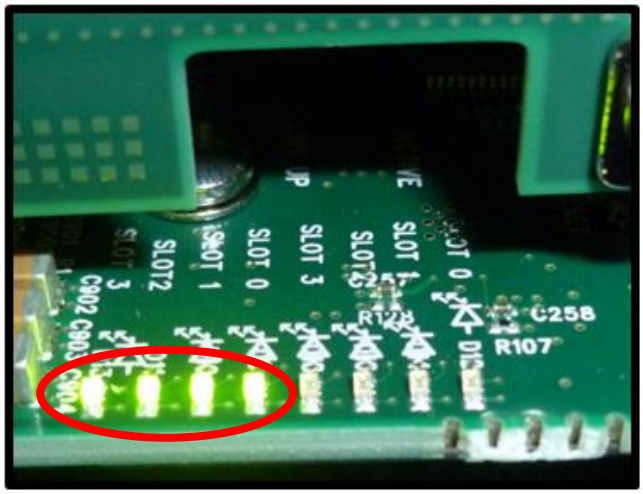
Link and Activity LEDs



LED	Description
SLOT 0 Link Up	Solid Green when good connectivity between the chassis and computer is established
SLOT 1 Link Up, SLOT 2 Link Up, SLOT 3 Link Up	Solid Green when there is/ are a PCIe card(s) in the slot and it is being recognized by switch (of the Expansion unit)
SLOT 0 Activity	Flickers when the Upstream slot (Interface card) is communicating back and fort with the host computer
SLOT 1 Activity, SLOT 2 Activity, SLOT 3 Activity	If the PCIE card(s) is /are executing command or being used or accessed by the application.

PCIE SLOT Link up LEDS

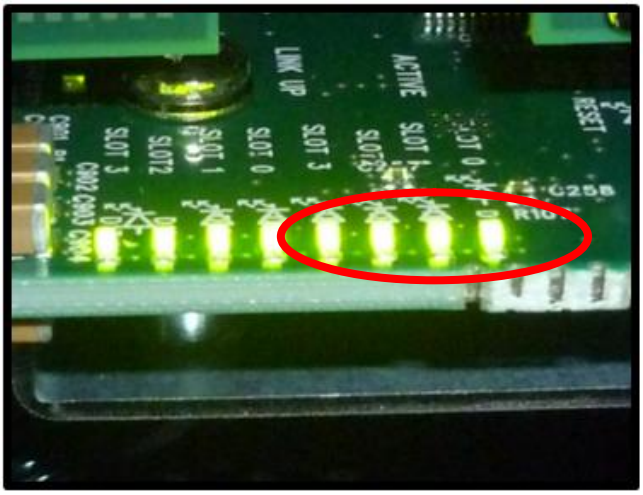
Each PCIe slots have designated LED indicators. SLOT Link up LED illuminates when a PCIe card is installed. Or when all of the PCIe slots are populated with PCIe cards all SLOT Link up LED should come on as shown from the picture below.



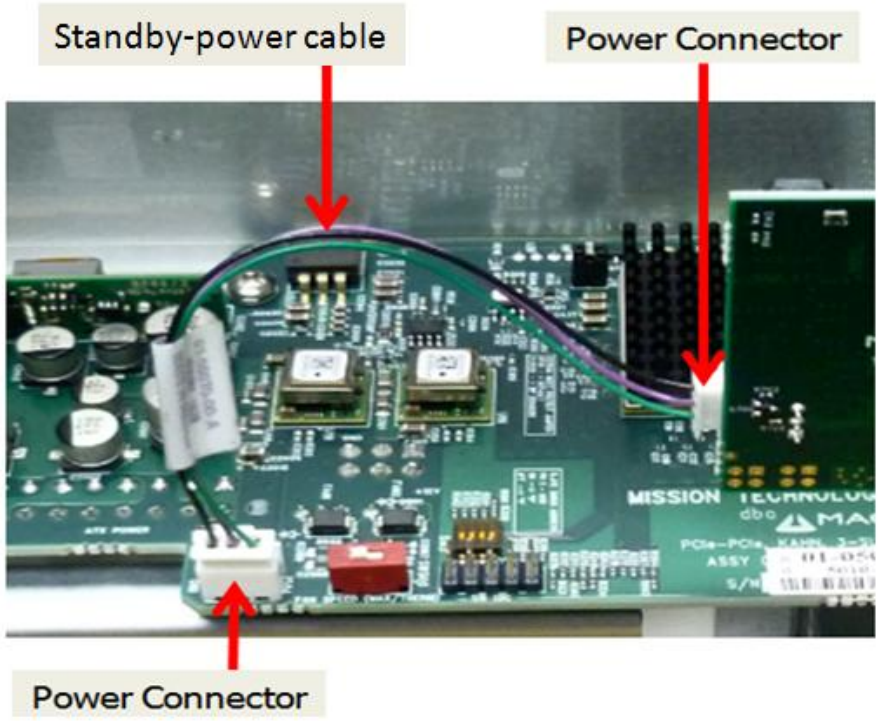
IMPORTANT
If you have PCIE cards installed in the PCIe slot(s) and none of the Link UP LEDs are illuminated this means that you either have a defective PCIE card or the PCIE card that is not seated all the way in the PCIE slot.

Activity LEDs

Each PCIe slots have their own Activity LEDs indicator. When this LED comes on it signifies that the PCIe card is executing a command or being used / accessed by the application. It comes on as "solid green" and / or sometimes it blinks or flickers.



Standby-power Cable



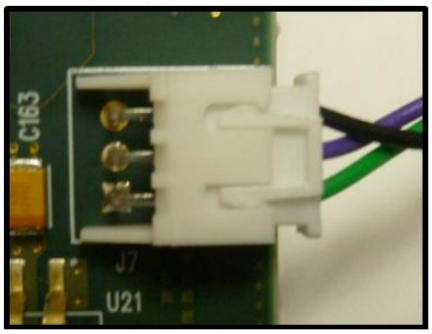
The Standby-power cable should be connected all the time.
If this is not properly attached, the Thunderbolt Interface card will not power up.

Important

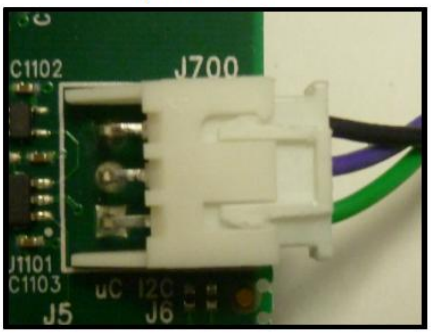
IMPORTANT
Make sure the standby-power cable is connected to the backplane and Thunderbolt Interface card.

If the Thunderbolt Interface card fails to turn ON you could be having a bad Thunderbolt Interface card, faulty backplane or a defective standby-power cable / wires.

Thunderbolt™ 2 Interface Card
power connector



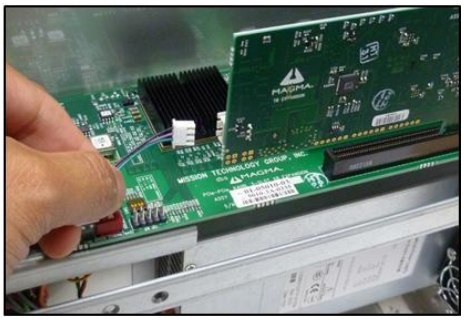
Thunderbolt™ 1 Interface Card
power connector



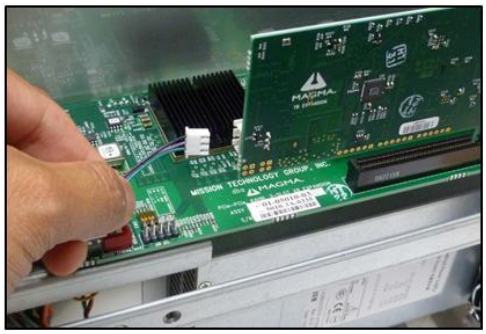
Thunderbolt Interface Card Installation

The following steps are applicable on how to replace and install a Thunderbolt Interface card.

1. Turn off the Expansion chassis first. Disconnect the power cord. Disconnect the Thunderbolt cable from Expansion chassis or from computer.
2. Unplug the Interface power cable from Thunderbolt Interface card. Unscrew to remove the interface card.



3. Plug-in the Thunderbolt Interface card in PCIE slot#0. This is the designated slot for the interface card. Installing the Interface card in a non-designated slot will cause the system to malfunction.
4. Plug-in the power cable Thunderbolt Interface card. Secure the interface card.



Important

IMPORTANT
The Roben 3 expansion unit will not power up if the Interface power cable is not attached to Thunderbolt Interface card or if it is disconnected from the backplane.

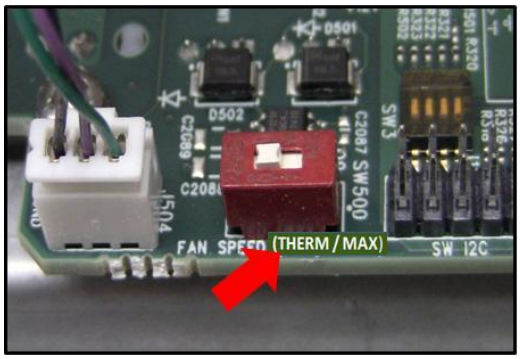
Internal Front Fan (Control Settings)

Some PCI Express cards produce substantial heat and must be cooled properly to eliminate over heating problem. One Fan is located in the front of the enclosure to provide cooling required for the hottest PCI Express Cards. Some graphics cards GPU's require these fans to be at full capacity to prevent over-heating.

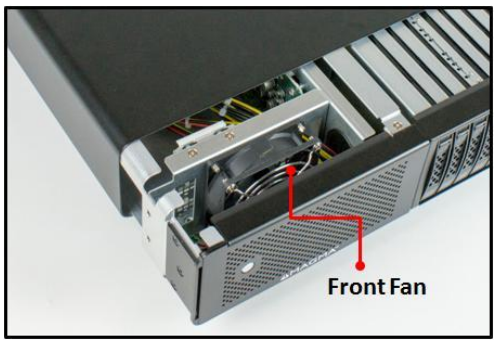
As safety measure, Magma provides ROBEN-3 with the fan functioning at full speed (MAX). However, noise is a concern for many applications. For noise sensitive applications, we have provided this Thermistor setting (THERM) to help alleviate fan noise in situations when a low heat producing card is installed in Magma Roben-3.

By default, the fan will run at maximum speed when the DIP Switch is to MAX that control fan speed. When setting to Thermistor (THERM), the fan speed is controlled by the temperature inside the enclosure. Thermally controlled fans will run at maximum speed when the Thermistor senses temperature at or above an upper limit. Fans will run at minimum speed if the temperature is at or below lower limit.

To set the FAN (speed) locate the red DIP switch SW500 on the expansion board. MAX = Fan runs at fast mode. THERM = Fan is set to Thermistor controlled.

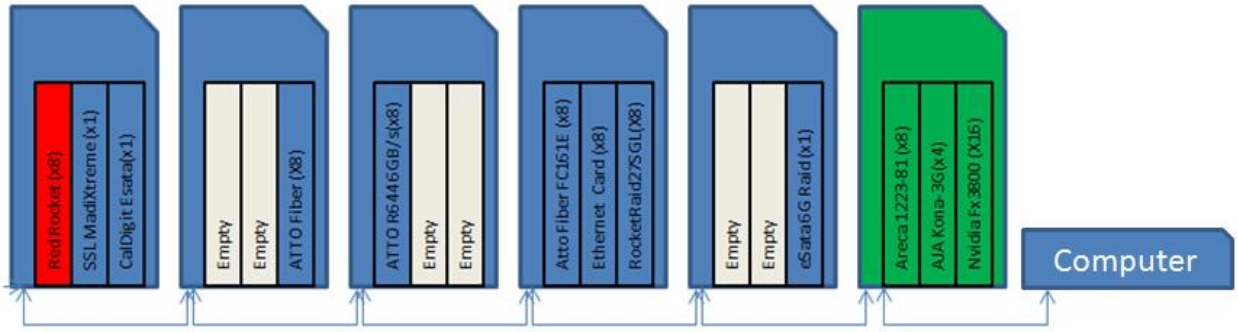


The DIP switch SW500 controls the front fan of the Roben-3 expansion unit.



Daisy Chain Configuration

Here's an example of a Daisy Chain Configuration of 6 Roben-3TX Expansion units



Daisy Chain Configuration

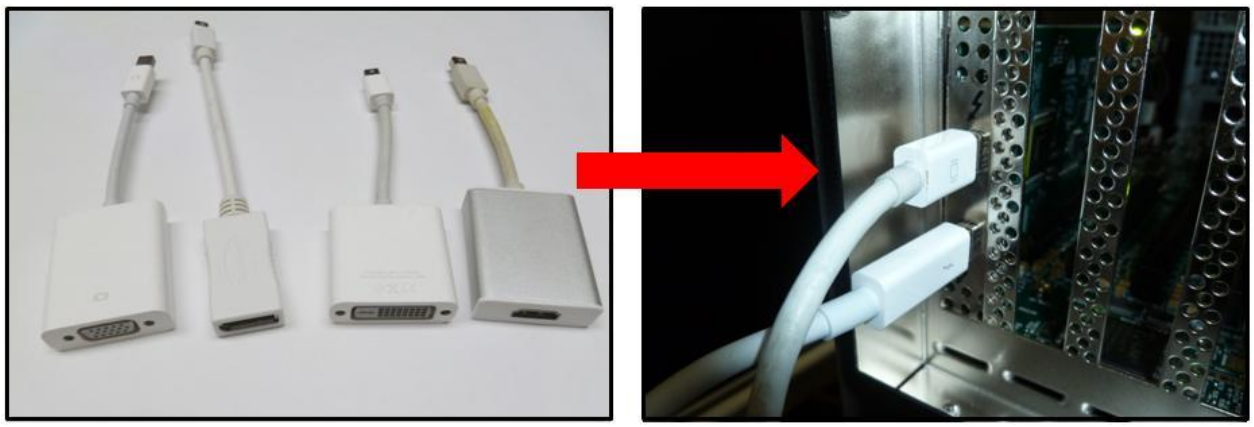
IMPORTANT
For best performance, it is recommended that Roben-3 be the first device in the Thunderbolt Daisy-chain.

Attaching Displays

You can use an appropriate Display Port connector to add a Display Port, HDMI, DVI, or VGA Display.

The Display Port connector can plug into the other Thunderbolt port on -3

Make sure your display is plugged in and the appropriate adapter is connected.

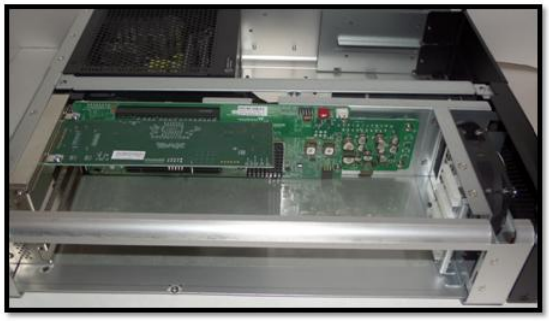


5.25-in Expansion Bays

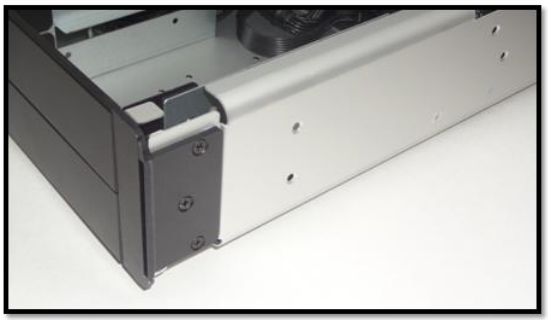
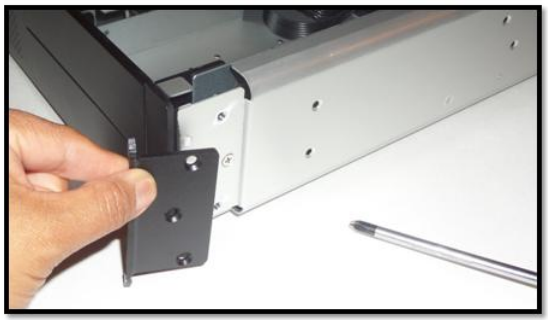
Roben-3TS has an available standard-sized 5.25" drive bay. There are two available area of reserved space in the drive bay where removal media devices such as CD, DVD, optical and including hard disks and floppy disk drives (or tape drives) can be installed.

Steps on “how to remove and install Drive Bay”

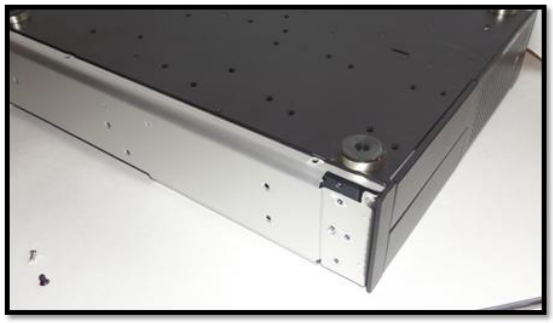
Remove Metal Bar



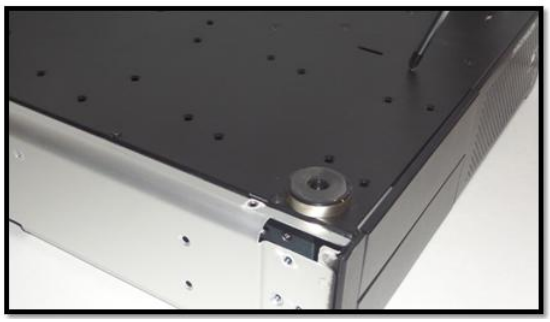
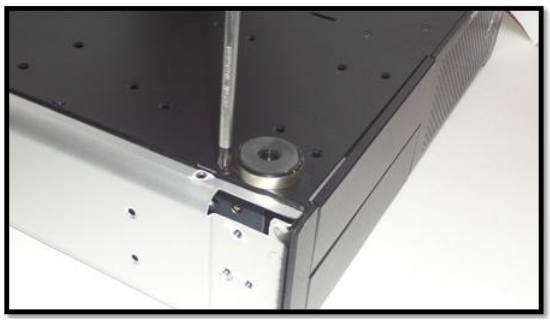
Remove left side ear of the expansion unit

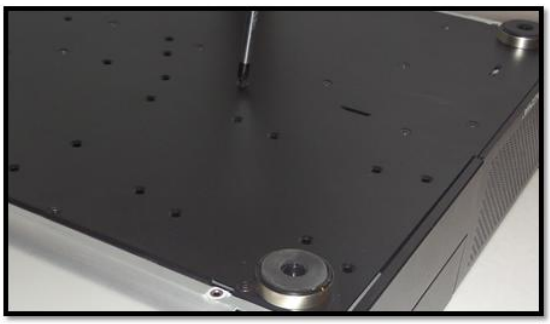
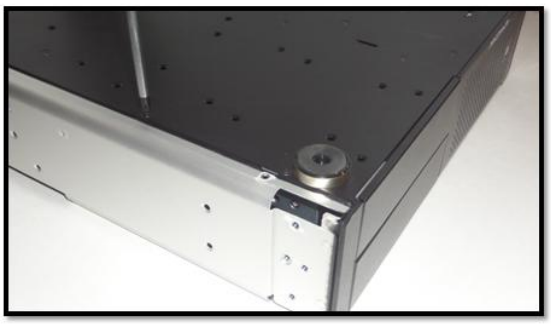
Turn over the expansion unit after removing the left-side ear



Remove screws, see pictures below

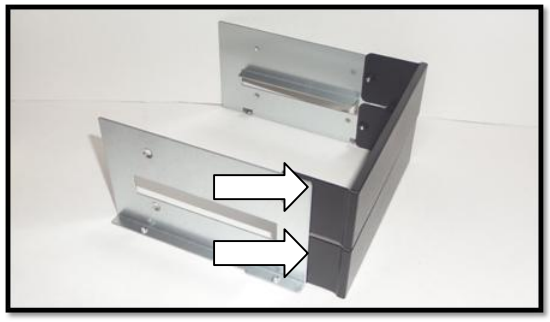
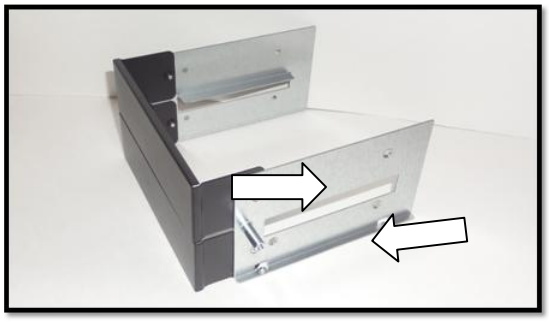



Remove screws, see pictures below

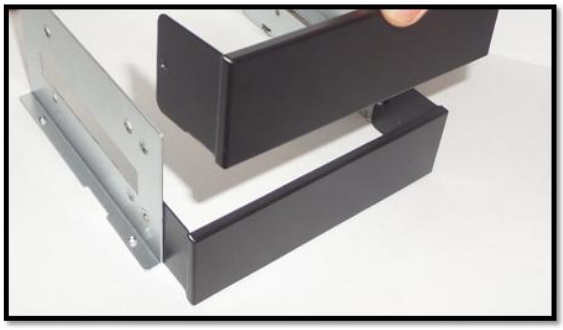



Lift the drive carrier / mounting bay

Remove screws

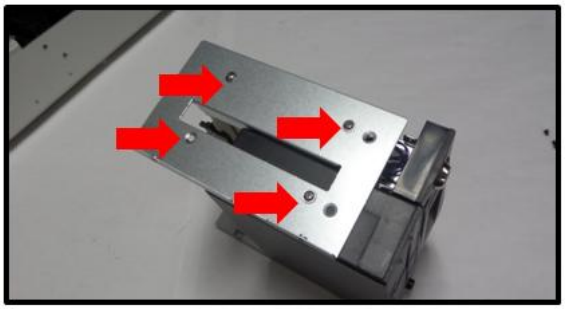



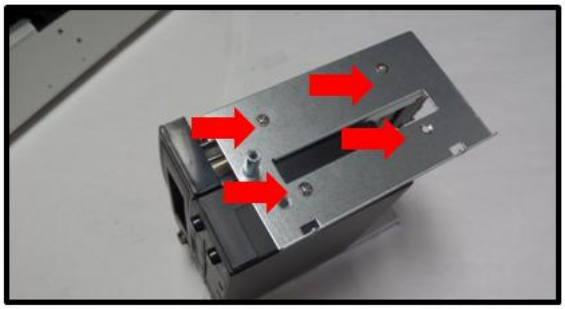
Remove front plate cover



Once you have removed the front plate cover you can now install the 5.25" drive carrier, see pictures below.

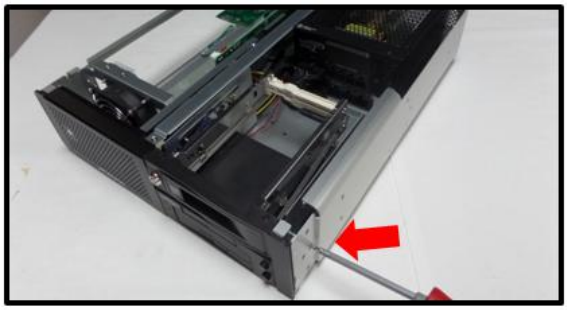
Install the drive carriers into the drive bays and secure it.





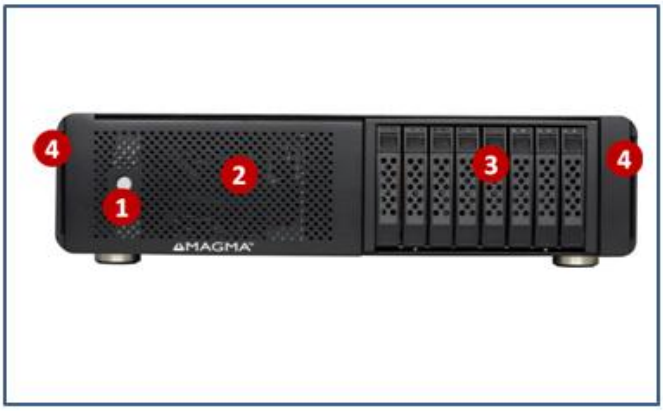
Put the drive bay back into the chassis

Secure the drive bay on the left side of the chassis.

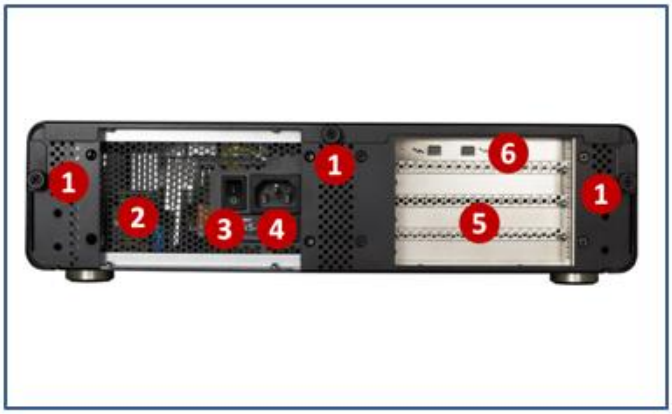


Secure the drive bay on the bottom side of the chassis.

Roben-3TS (3 Slot Thunderbolt – Storage)



Item #	Descripton
1	Front LED
2	Air Ventilation
3	8 Storage Drive Bays
4	Rack Ears Mounting Section



Item #	Descripton
1	Thumb Screws
2	Fanless Power Supply
3	PSU ON/Off Switch
4	Power Cord Socket
5	Card Slot Opening
6	Thunderbolt Ports

Item #	Descripton
1	Thunderbolt Interface Card
2	Expansion Backplane
3	Front Fan
4	Drive Mounting Bay
5	Fanless Power Supply
6	Storage Drive Fans

Chassis Features

1. Eight (8) 2.5” hot swap drive bays
2. Supports up to eight (8) SATA/SAS HDD or SSD drives.

Parts List

Qty	Item
1	Thunderbolt Interface card (Installed)
1	Power Cord
8	Drive Trays (Installed)
2	SAS Cable (Installed)
32	3mm Centering Screws for Drives (32 quantities)
1 set	Rackmount Kit (Optional). For Roben-3 Rackmount model, see page 53

Thunderbolt Cable, Controller card and Drives (SATA/ SSD) are not included. We recommend the standard 2.5 in SSD or SATA drives.

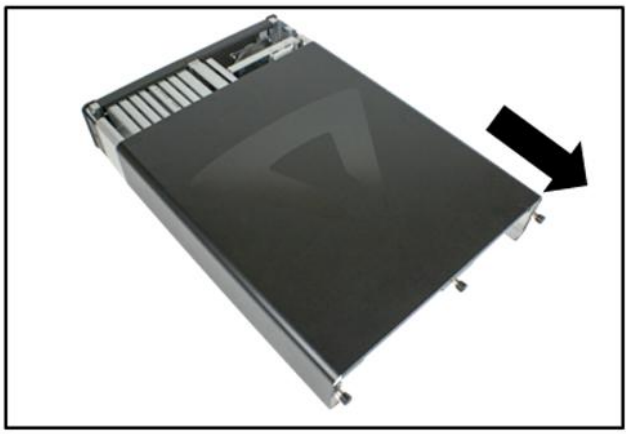
Installation-Procedures Overview

Below is the concise version on how to set up the ExpressBox 2200.

1. Open Enclosure
2. Install Thunderbolt Interface card(if not installed)
3. Install Storage Drives (see drives installation) & Controller card
4. Install PCIe cards (see notes below)
5. Attach Power Cord
6. Connect to Electrical Outlet
7. Plug in Thunderbolt Cable
8. Power on Computer
9. Verify Hardware Connection
10. Verify Installation (via Operating System)

Open Enclosure

Loosen the thumbscrew that retains the top cover of the chassis and slide the lid towards you as shown below:



Install Thunderbolt Interface card

The thunderbolt Interface card is already installed for this model. No need to install the Thunderbolt Interface card

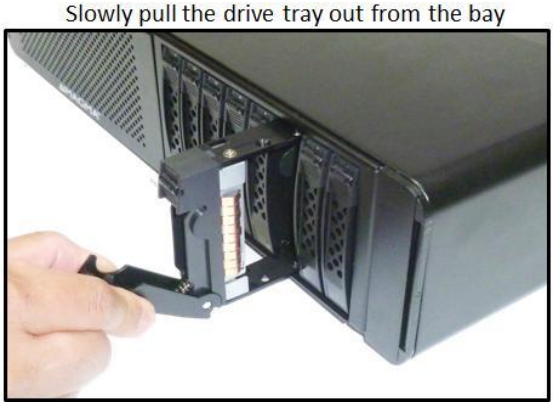
If you need to replace or install a Thunderbolt Interface card, go to Thunderbolt Interface card Installation on page 27.

Storage Drive Installation

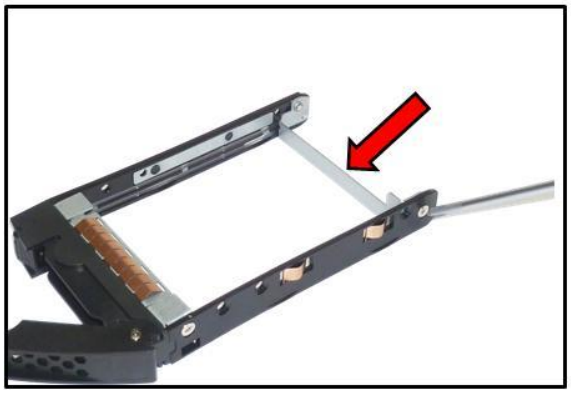
Install the disk drives first. Remove drive tray from the storage bay.

Press top button to release front mechanical latch

Slowly pull the drive tray out from the bay

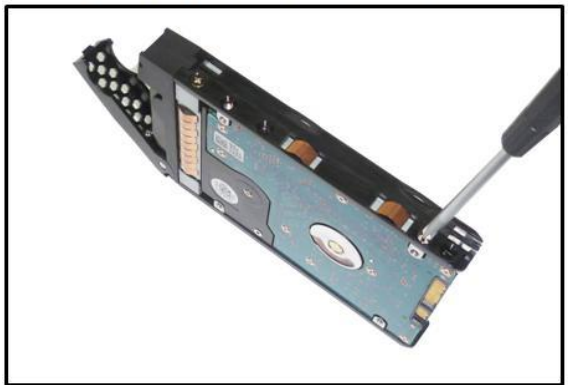


Remove the metal retainer



Mount drive into drive tray as shown from the picture below. Pay attention to the correct orientation of the tray and position of the drive.

Secure drive properly to avoid getting detached from tray

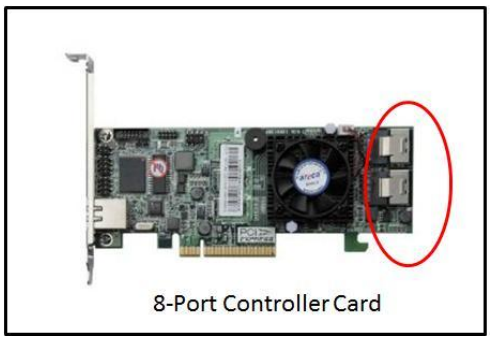


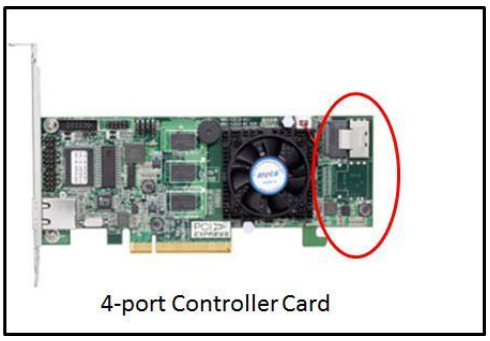
Prior to putting the drive tray back into the drive bay make sure the front mechanical latch is released. Slide the drive tray all the way in slot and then press the mechanical latch to secure.

Disk Drive Controller Card Installation

Use a disk controller card that can support 8 drives. We recommend using Areca Controller card or a PCIe controller card that is supported by Windows Operating system and Apple Mac OS X. And has an Apple Thunderbolt compatible driver. Below are pictures of two Arecas PCIe Controller cards.

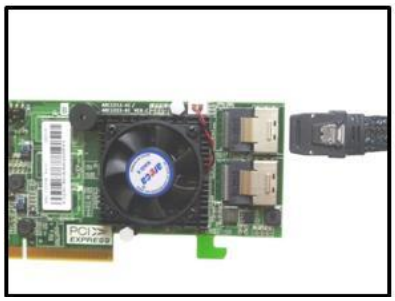
1. 8-port Controller card support 8 drives.
2. 4-port Controller card support 4 drives.

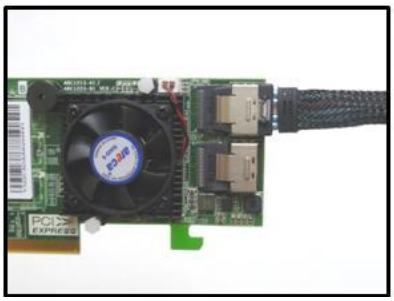


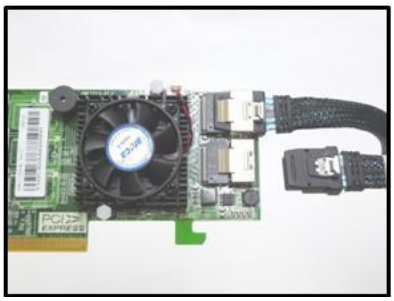


1. Connect the SAS / SATA Cable to controller card.
   a) If you have four drives installed you have to connect one SAS / SATA Cable to controller card.
   b) If you have 8 drives, connect two SAS / SATA cable.

NOTE: When installing four drives make sure to place them in one-bay location. The storage bays are divided into two or four drives per bay.







2. Plug-in controller card in any available PCIe slots and secure it.

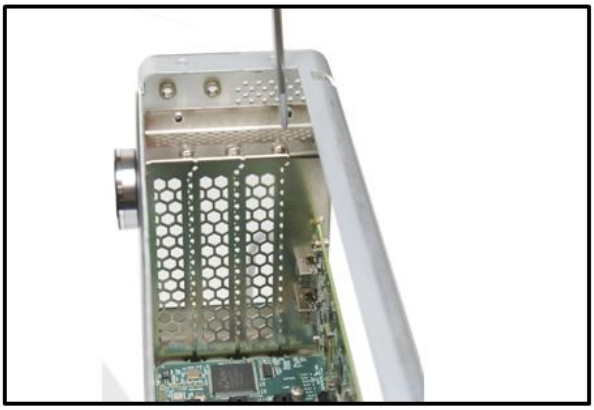
3. See Chapter for Hardware and Software Configuration

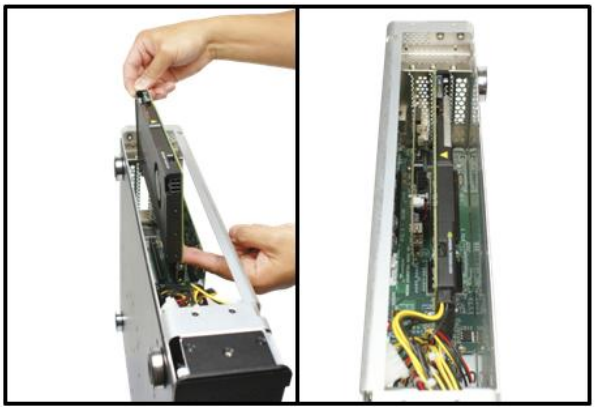
Install 3rd Party PCIe Cards

Some card manufacturers recommend that you install their software driver prior to installing the card. If this is the case, be sure to install the card driver before connecting Roben-3to the computer.

- Slot 3 accepts all types of PCIe cards x1, x2, x4, x8 or x16
- Slot 2 accepts all types of PCIe cards x1, x2, x4, x8 or x16
- Slot 1 accepts all types of PCIe cards x1, x2, x4, x8 or x16 (next to Thunderbolt interface card)

Remove slot covers and install PCIe cards.



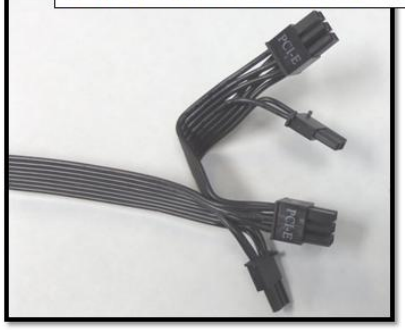


Make sure that all cards are fully seated in their connectors. When correctly seated, there will be a firm resistance when you pull up gently on the card. To keep the cards in place, secure them in the enclosure with their retaining screws. After securing the cards verify that they do not touch each other.

Auxiliary Power Connectors

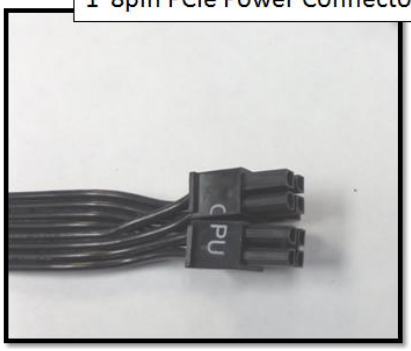
Some PCIe cards require extra power. Roben-3TX and Roben-3TS power supplies provide the following power connectors / adapters (see pictures below). There are five 4-pin Molex AUX power connectors that can be used for providing extra power to cards. And two (6+2 pin) PCIe connectors for GPUs.

2 (6+2) PCIe Power Connectors



5 4pin Molex Power Connectors

1 8pin PCIe Power Connector



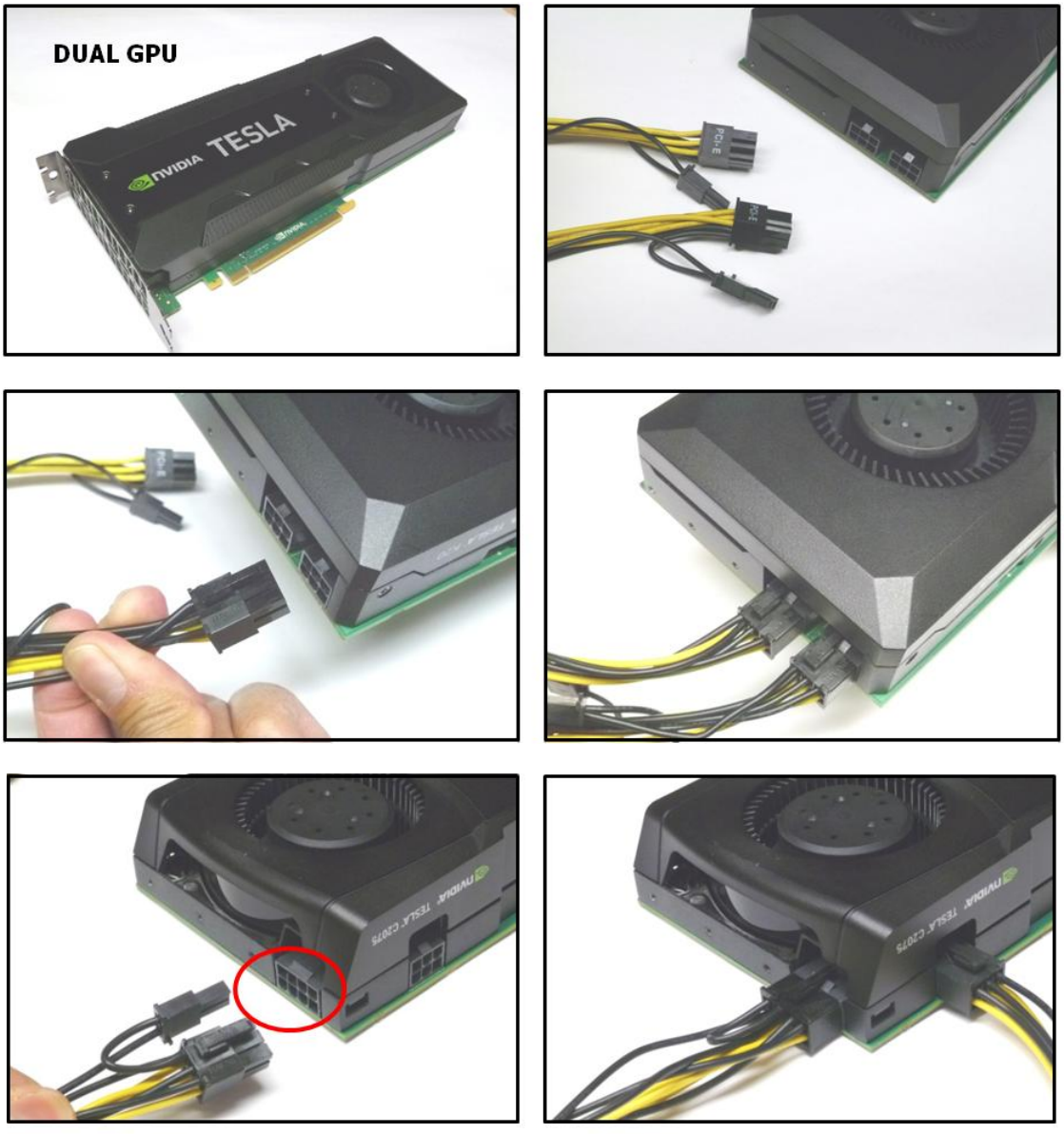
6 SATA Power Connectors

One 6 inch 5.25 Male to 3.5 Female Internal Power Adapter

High Power PCIe card installation

High Power PCIe cards also known as High End PCIe cards such as GPUs and other similar type of card requires an additional power (or AUX Power) to operate. Most of these High power PCIe cards have an auxiliary power adapter cables that are included with it when you buy them. If it is not available, there are 6-pin PCIE connectors built in to the power supply that can be used to provide power to your GPUs or High Power PCIe cards.

Other High power PCIe cards may use different Aux power adapter connectors. You can connect them to any of the 4-pin Molex connectors available on the power supply.



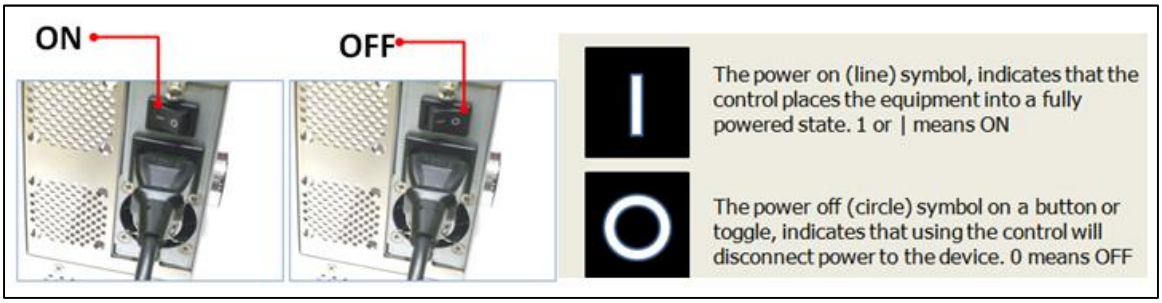
Other GPUs or PCIe cards may require to use 8 pin connectors , see pictures above

Attach Power Cord

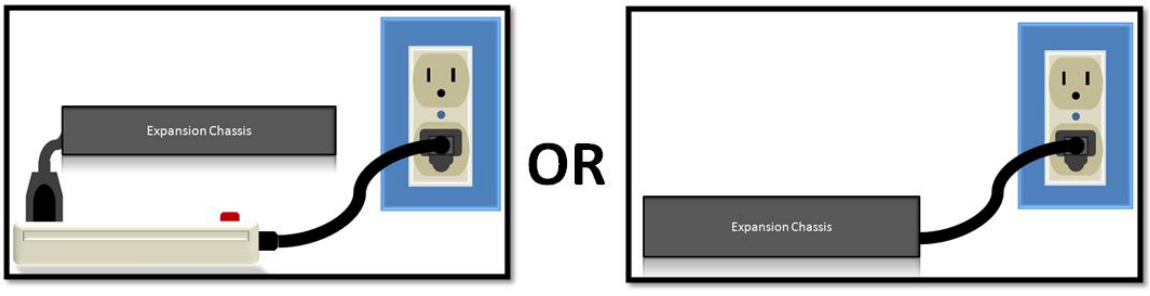
NOTE
If at all possible, plug all power cords from the expansion chassis and your host computer into a shared power strip, preferably one that has surge and noise suppression circuitry built into it.

1. Plug in power cord to Roben-3. Make sure the Power Switch on the power supply is turned OFF.

2. Turn power supply switch to ON position.
3. Two green LED on the Interface card are illuminated. No LEDs are illuminated on the backplane.


ON
OFF
The power on (line) symbol, indicates that the control places the equipment into a fully powered state. 1 or | means ON
The power off (circle) symbol on a button or toggle, indicates that using the control will disconnect power to the device. 0 means OFF

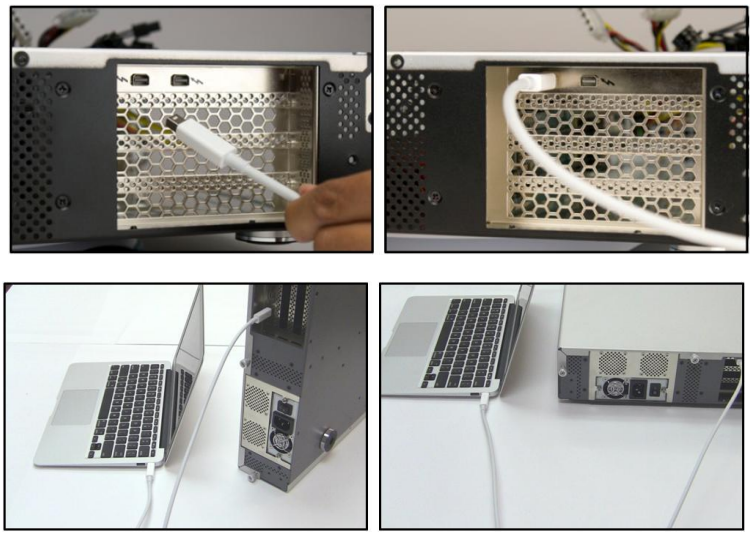
Connect to Electrical Outlets



Be cautious, practice safe and correct methods when powering up your expansion unit. Before powering ON the system make sure all PCIe cards are seated properly into the card slots.

Connect Thunderbolt Cable

Attach Thunderbolt cable into either top or bottom port on the Roben-3. Plug in Display Monitor, DVI/HDMI, or Display. If no display will be used, you can daisy chain other Thunderbolt devices. Plug in the other end of the Thunderbolt cable to the Thunderbolt port on the computer.



Connect the Thunderbolt cable to one of the ports on the back of Roben-3 and connect the other end of the cable to the Thunderbolt port on the computer. You can use the available Thunderbolt port for attaching a Thunderbolt device or an external display monitor.

Powering "On" the Computer

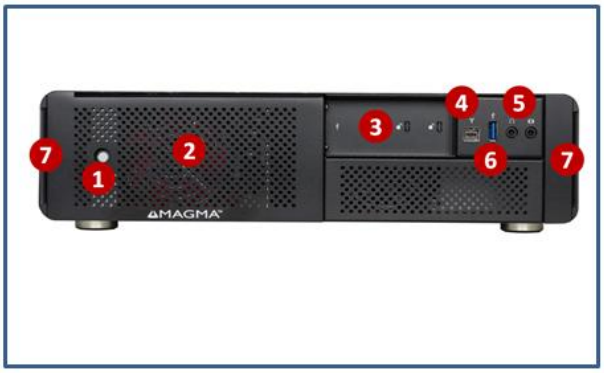
Roben-3 will automatically turns ON when the computer is turned ON. A White light located on the front panel will shine when the expansion chassis is ON. Roben-3 will automatically turn OFF when the computer is turned OFF or goes into Standby mode. If either end of the Thunderbolt cable is removed while the system is ON, the expansion chassis will automatically power down.

The White light on the front of Roben-3 is not an ON (On-off push button), it simply indicates whether the chassis is on or off. If either end of the Thunderbolt cable is disconnected, Roben-3 will automatically turn off.

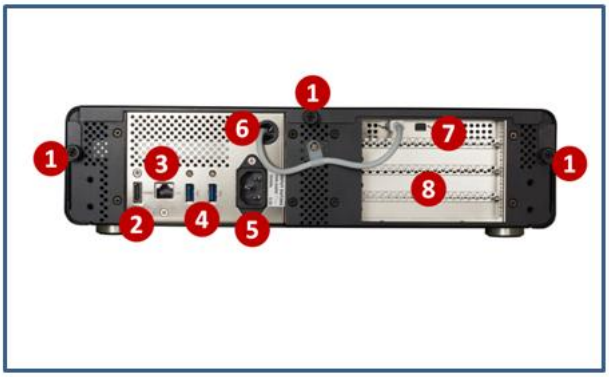
Verify Hardware Connection

You should see four (or Five) Green LEDS illuminated on the interface card and three on the backplane. For more information on LEDs go to pages 18 to 25.

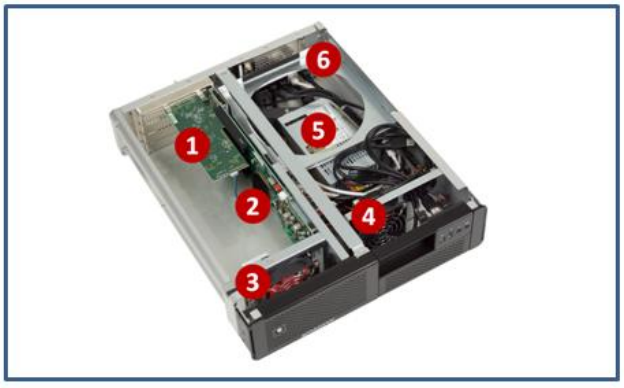
3TM (3 Slot Thunderbolt – Mac mini)



Item #	Description
1	Front LED
2	Air Ventilation
3	Ilok Compartment
4	Firewire Port
5	Mic & Audio Ports
6	USB Port
7	Rack Ears Mounting Section



Item #	Description
1	Thumb Screws
2	HDMI Port
3	Ethernet Port
4	USB Ports
5	Power Cord Socket
6	Thunderbolt Cable
7	Thunderbolt Ports
8	Card Slot Opening



Item #	Descripton
1	Thunderbolt Interface Card
2	Expansion Backplane
3	Front Fan
4	2nd Front Fan
5	Power Supply
6	Mac mini Tray Holder

Additional Chassis Features

1. Mounting bracket for internal housing of Mac mini (Mac mini sold separately).
2. Mac mini connectivity provide to front and rear panels.
3. Rear panel: 2 USB 3.0, 1 Gb Ethernet, 1 HDMI.
4. Front panel: 2 USB 3.0, 1 Firewire, 1 Audio in, 1 Audio out, power on/off button.
5. Lockable iLok secure location using one of the front panel USB ports (lock sold separately.
6. Single power cord for expansion slots and Mac mini.
7. Thunderbolt cable included

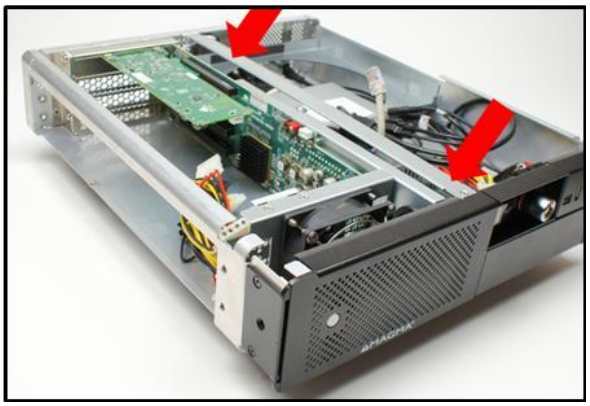
Parts List

Qty	Item
1	Thunderbolt Interface card (Installed)
1	Power Cord
1	Thunderbolt Cable (Installed)
1 set	Rackmount Kit (Optional). For Roben-3 Rackmount model, see page 53

Mac mini not included.

Installation of Mac mini

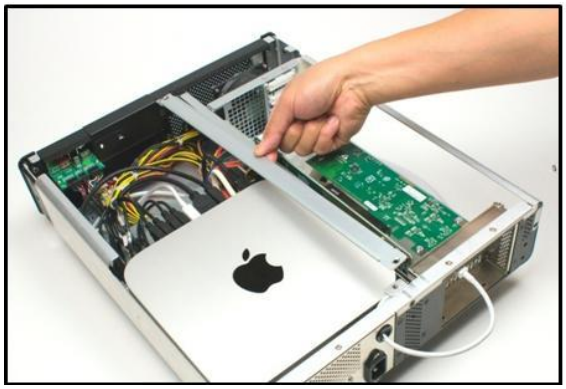
1. Remove Top bracket



2. Connect all Audio Cable, 4 USB Cables, HDMI cable, and Firewire cable, Ethernet Cable, Thunderbolt Cable and Power to Mac mini.

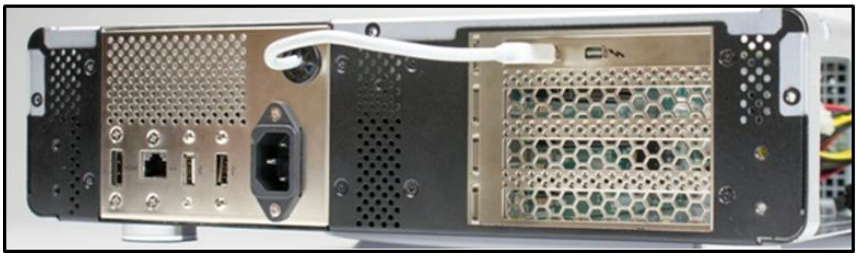
3. Place the Mac mini inside the chassis as shown from the picture below. Position the Mac mini where all cables are facing towards the front end.

4. Put the bracket to secure Mac mini.



Connect Thunderbolt Cable

1. Connect the thunderbolt cable to thunderbolt port on the back of the unit.
2. Connect the other end of the Thunderbolt cable to Mac mini thunderbolt port.



Attach Power Cord

Connect the power cord to the power receptacle on the back of the unit. The Mac mini does not have a Rocker On/Off switch on the back of the unit.

Power On Computer

Roben-3 will automatically turns ON when the computer is turned ON. A White light located on the front panel will shine when the expansion chassis is ON.

Roben-3 will automatically turn OFF when the computer is turned OFF or goes into Standby mode.

A. Two green LEDs on the Interface card are illuminated.
B. No LEDs are illuminated on the backplane.

Verify Connection

1. You should see four (or Five) Green LEDs illuminated on the interface card and three on the backplane. For more information on LEDs go to pages 18 to 25.

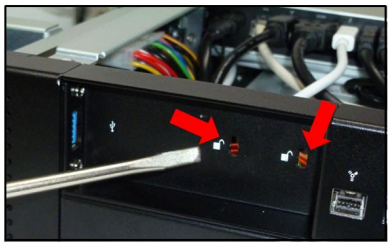
Lockable ILok

This is another feature of Roben-3 Mac mini that allows you to lock your valuable application or plug-in licenses right to the chassis. The Ilk security housing is located on the front panel USB port as shown from the picture below.

IMPORTANT
The ILok security lock is sold separately and it comes with an installation guide.

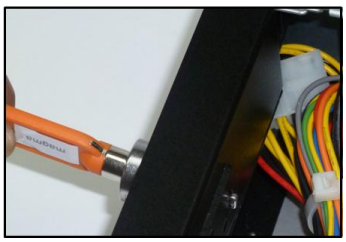
Installation of ILok Security Lock

1. Using a flat screwdriver, push the metal tab to remove from the notch as shown from the picture below.



2. Install or insert ILok into USB Port as shown from pictures below.

3. Mount ILok Security lock



4. Push the key and rotate counter clockwise until it stops as shown from the pictures below.

5. Pull the Key out.

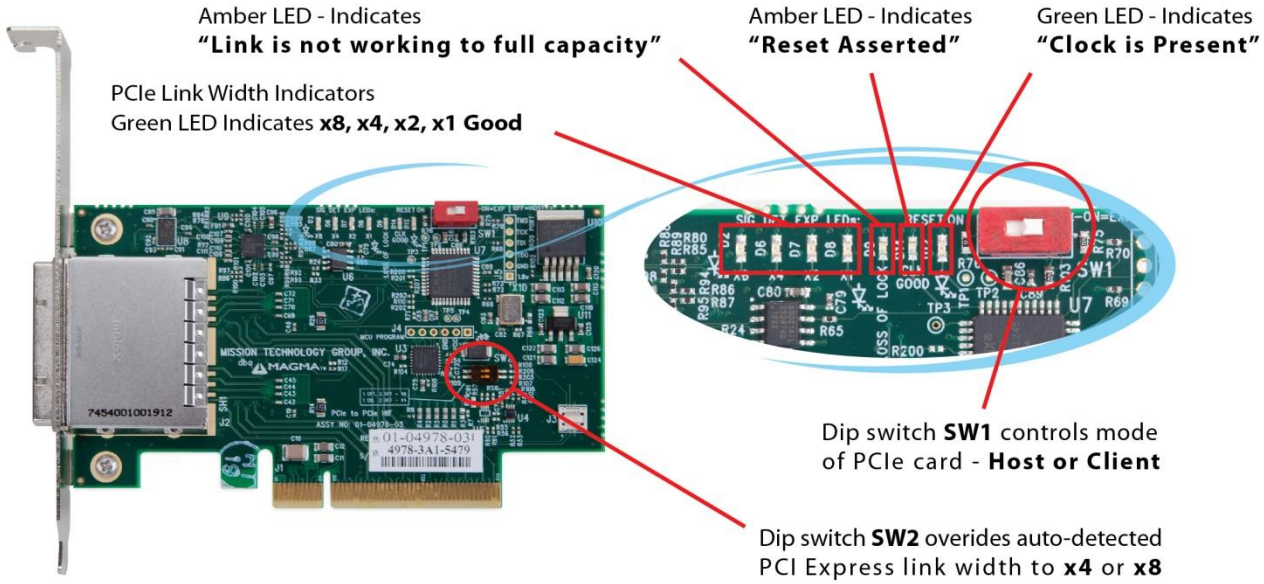
PCIe Expansion and Host Interface Cards

You can also use Expansion and Host Interface cards with your Roben-3 chassis. Ideal connection for small, local networks that require high-speed PCIe connectivity.

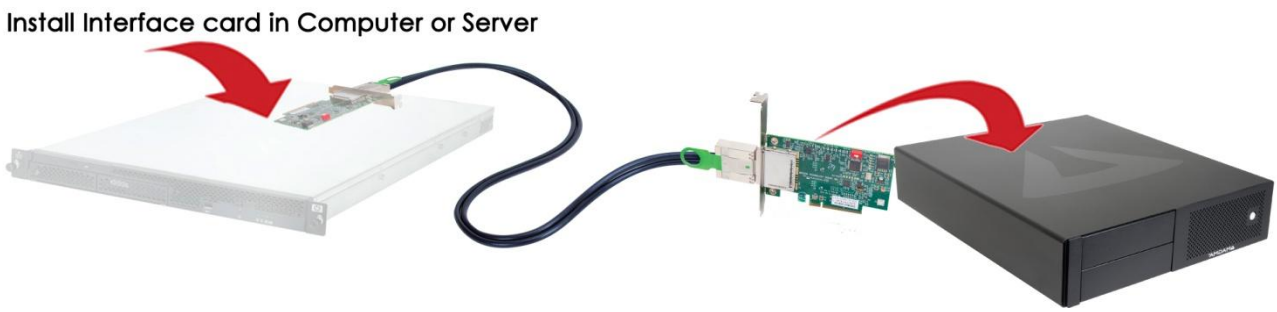
- Connect PCI Express Host to Expansion over cable
- Support speeds up to 40Gbps
- Use same PCIe interface card for both sides of the connection
- Industry standard iPass cable

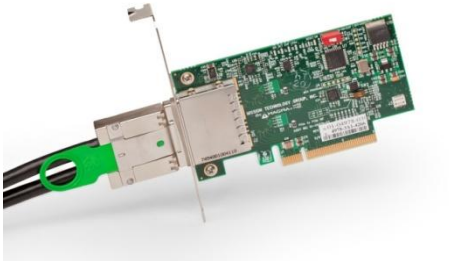
Use Magma's PCI Express Expansion to create a super-fast PCIe connection outside the computer
The Roben-3 PCIe x8 Gen 2 Expansion is the perfect solution for creating a super-fast local PCIe connection from a host computer to a target PCI Express device. The Magma 01-04978-03 interface card installs into any x8 or x16 PCIe slot in the host computer motherboard and the other Magma 01-04978-03 interface card can be inserted into a designated upstream PCIe slot. A high-speed iPass cable allows data transfers to and from the host computer at 40Gbps.

Onboard Visual Diagnostic Features
Multiple LEDs and dip switches make debugging and troubleshooting easy. Visible LEDs show the PCIe link width that each PCIe interface card is operating. Other LEDs for "Loss of Lock," "Reset ON" and "Clock Good" are useful visual indicators for troubleshooting and verifying the connection without expensive software diagnostic tools.


Amber LED - Indicates
"Link is not working to full capacity"
Amber LED - Indicates
"Reset Asserted"
Green LED - Indicates
"Clock is Present"
PCIe Link Width Indicators
Green LED Indicates x8, x4, x2, x1 Good
Dip switch SW1 controls mode of PCIe card - Host or Client
Dip switch SW2 overides auto-detected PCI Express link width to x4 or x8

How it Works





Features:

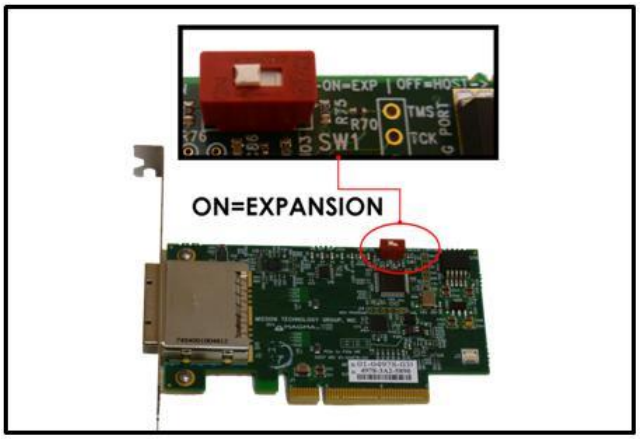
- High-speed x8 PCI Express connection
- Low profile bracket provides for easy installation in low profile computers
- Easily visible LEDs indicate correct installation and PCIe link width
- Low power consumption - less than 4 Watts
- LEDs show status of connection for quick debug- reset indicator, clock indicator, link width indicator
- Supports Spread Spectrum Clocking, LOS (Loss of Signal), LOL (Loss of Lock Indicator)
- Low Latency and Low Jitter

Benefits:

- Transparent extension of PCI Express signals outside the computer
- No software required - connection is automatically recognized and configured by system BIOS
- Attach large power hungry PCI Express cards to computer with limited card space
- Low latency PCIe connection between host and target without using bridges or switches
- Same PCIe card used for both the host and expansion device
- Interface Card can be used with any PCIe compliant expansion chassis - Magma
- Automated x1, x4 and x8 link negotiation for PCI Express Gen1, Gen2 and Gen 3
- Ability to override automatic PCIe link training through dip-switch settings

PCIe Expansion Interface Card Installation

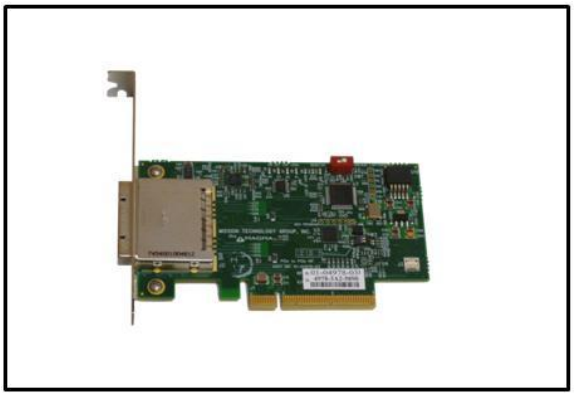
By default the Expansion Interface card SW1 switch is set to "ON=EXP." The expansion system will NOT function if SW1 is set to OFF=HOST.



1. Turn off the Expansion chassis first. Disconnect the power cord. Disconnect the Thunderbolt cable from Expansion chassis or from computer
2. Unscrew the Expansion Interface
3. Install new Expansion Interface card
4. Plug-in the card in PCIE slot#0. This is the designated slot for the interface card. Installing the Interface card in a non-designated slot will cause the system to not operate

PCIe Host Interface card Installation

Begin the installation of your PCI Express (PCIe) host card by first powering down your computer.
The PCIe host card is a "half-height," x8-capable PCIe card mounted to a "full-height" bracket as shown below.

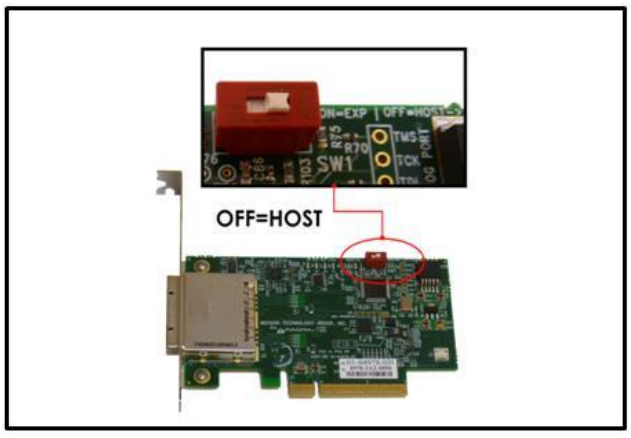


For low profile case applications, you may need to change the mounting bracket to the low profile bracket that shipped with your system. This is done by removing the screws that hold the card to the bracket. Be sure
you are using proper ESD procedures when completing this action.

WARNING
YOU MUST ONLY INSTALL THE PCIe HOST CARD INTO A PCI EXPRESS SLOT.

Only use Interface card WITH bracket. This will ensure that your PCIe host card can only be inserted into a PCIe slot. Although PCI Express cards without brackets may fit into conventional PCI slots, you run the risk of damaging the PCI Express host card if you insert it into a PCI slot.

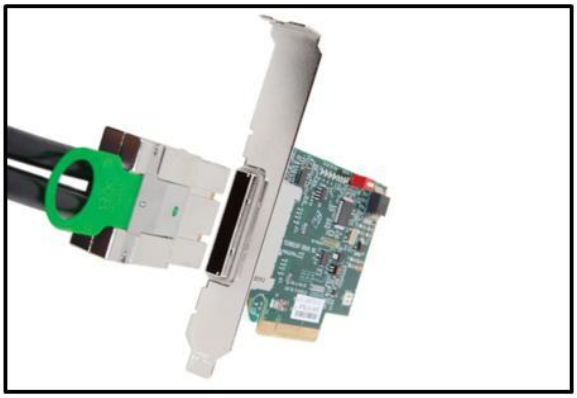
1. Once the host computer is off and all power cords are disconnected from the AC outlet, remove the cover.
2. Check the red DIP switch (SW1) on the interface card, this should be set to OFF= HOST.

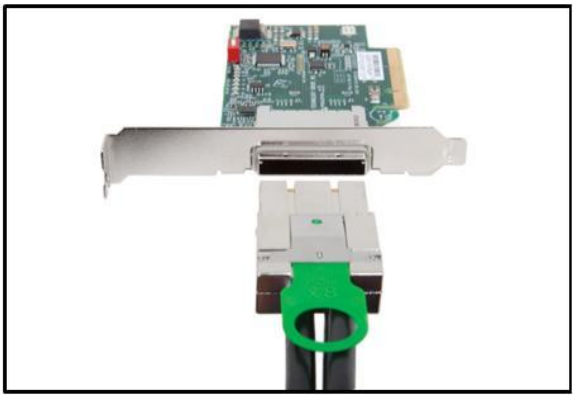


3. Insert the PCI Express host card into a vacant x8 (or x16) PCIe slot by gently pushing the card until it is firmly seated. Then secure the card to the slot with a mounting screw.

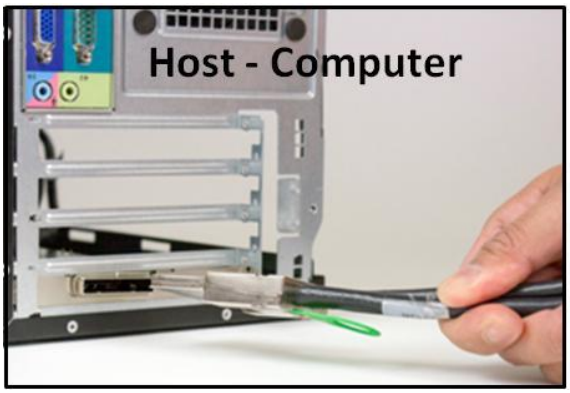
Connect Ipass Cable

Proper way of connecting the Ipass cable to Interface card, see pictures below.

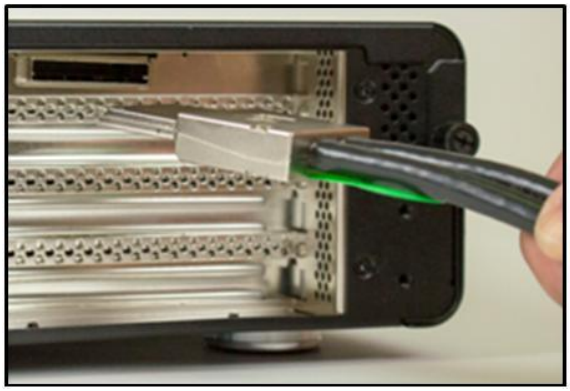


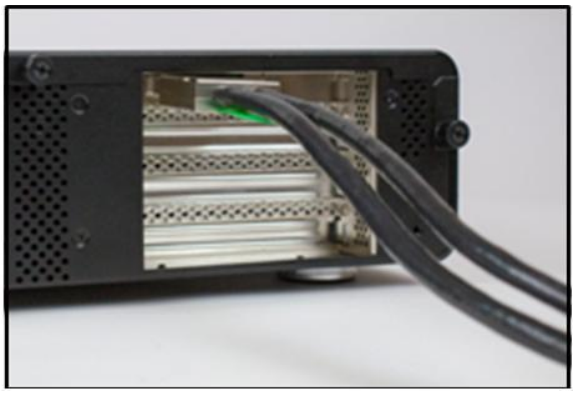


1. Connect the Ipass cable to Expansion port on the back of the unit.



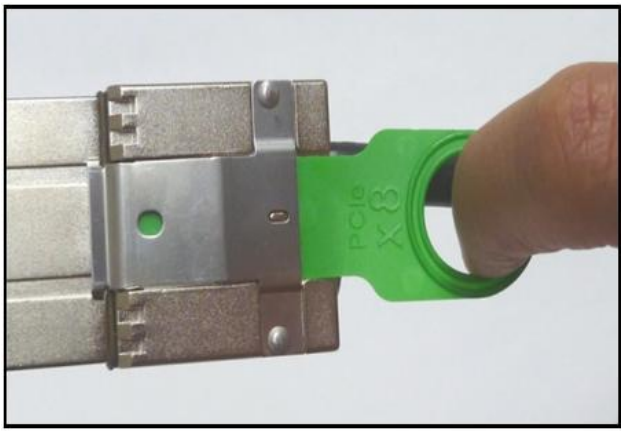
2. Connect the other end of the cable to host computer via Host Interface card.





To Disconnect Ipass Cable

1. Pull the green tab while slowly pulling out the cable from the interface card.
2. Failure to do so can break the connector inside the interface card, which can cause the system to malfunction.



Plug-in Power Cord

1. Connect the power cord to the power receptacle on the back of the unit.
2. Before connecting the power cord make sure to turn off the switch.

Powering ON and powering OFF the unit

To Turn ON

1. Press the power supply Rocker switch to On position. The (I) symbol should be pressed down. When the chassis power is on the unit is set to stand-by mode
2. Roben-3 will automatically turns ON when the computer is turned ON

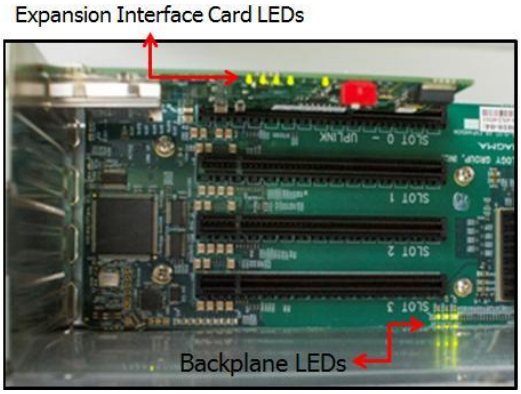
To Turn Off (Always power down the Host computer first before the chassis.)

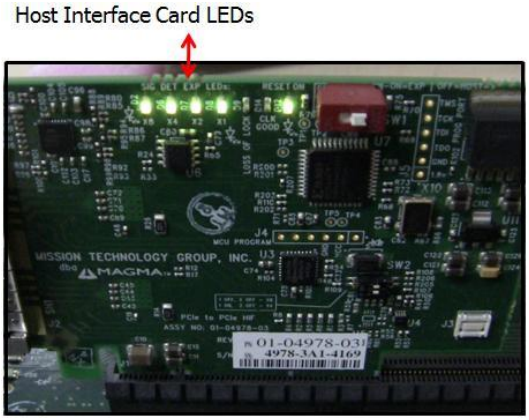
1. Press Off or shutdown computer, Roben-3 will automatically turns OFF.

Verify Connection

Once you have installed the Interface cards correctly and both computer and expansion are running, the next thing to do is to check the LED Link up status. Verify the following LEDs on the expansion and host interface cards. Host Card and Expansion card with proper link established should show up with FIVE solid green LEDs. The Interface card is plugged into X8 PCIe slot.

1. You should see the following LEDs are illuminated:
    a. Three green LEDs on the backplane
    b. Four to Five green LEDs on the Expansion card
    c. Four to Five green LEDs on the HOST card, which is installed inside the host computer



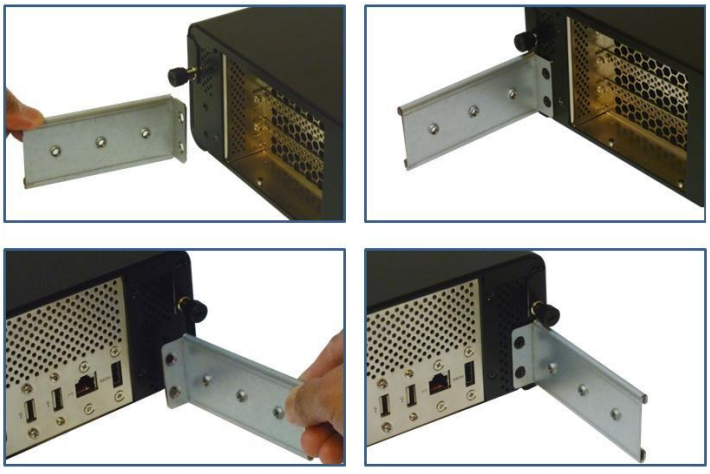


Rack-Ears Installation

1. Remove the left and right metal brackets as shown from the pictures below.

2. Mount Left and right rack ears. Use the existing screws on the unit to secure the rack ears.

3. Mount the left and right extender rails to rear panel of the unit as shown from the pictures below.



Rackmount and Storage Kits

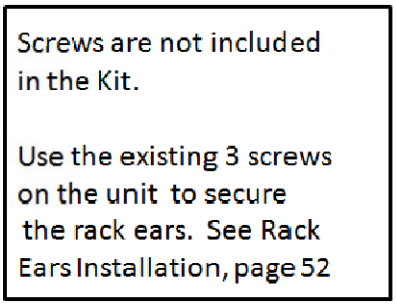
Rackmount kit is composed of the following items (or sees pictures below)

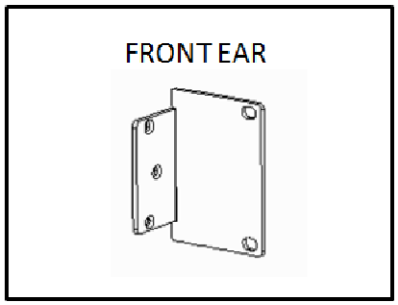
1. 2 Front Rack Ears
2. 2 Rear Inner Ears with SCREW M4
3. 2 Rear Long Ears (7 inch extender) with 4 SCREWS 10-32

The Rackmount kit is available and included for the following Roben-3 Rackmount models.

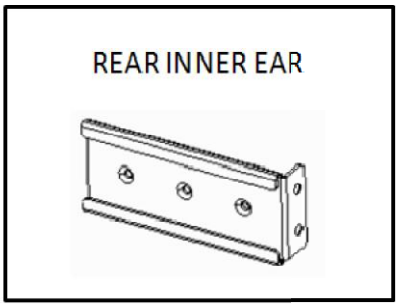
1. ROBEN-3TX Rackmount
2. ROBEN-3TM Rackmount
3. ROBEN-3TS Rackmount

Front Ear, QTY 2

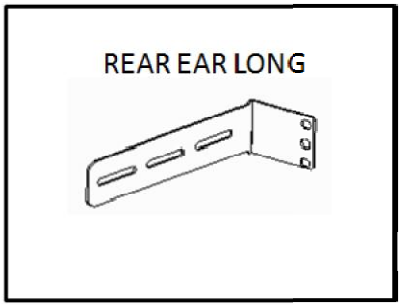

Screws are not included in the Kit.
Use the existing 3 screws on the unit to secure the rack ears. See Rack Ears Installation, page 52



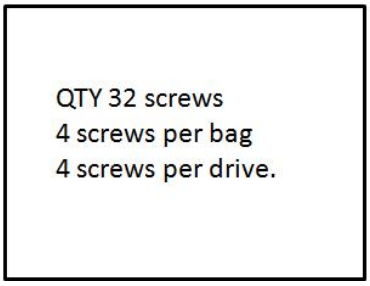
Rear Inner Ear, QTY 2



Rear Ear Long (4 inch extender), QTY 2



Storage Kit comes with 32 screws for mounting the disk drives. This is only available for ROBEN-3TS Rackmount Rackmount.



For disk drive installations go to page 26 or page 46.

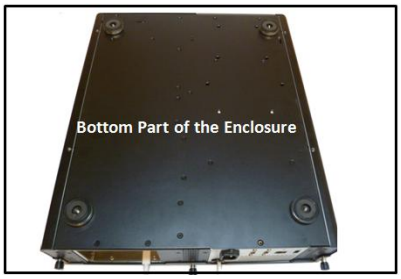
Note: You can buy the Rackmount kit for standard Roben-3 Desktop model. Visit www.magma.com or contact our Sales Team for pricing and availability.

Securing the Top Cover

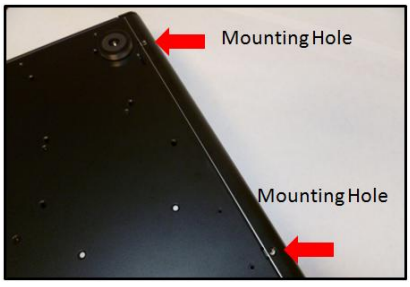
It is best to secure the top cover with the three thumb screws on the back of the unit when carrying, transporting or shipping the expansion unit. If required, additional retention of the cover may be achieved using the four mounting holes under the enclosure.

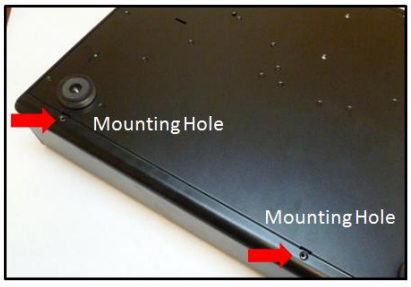
NOTE: All Roben 3 models come with the 4 mounting screws (enclosed in a small plastic bag) for the option of securing the bottom part of the cover to the chassis.

1. Turn over the expansion chassis to expose the bottom part where the mounting holes are located as shown for the pictures below.



2. Install the screws to their designated mounting holes to secure the bottom part of the cover as shown from the pictures below.





Chapter 3 Verify Installation

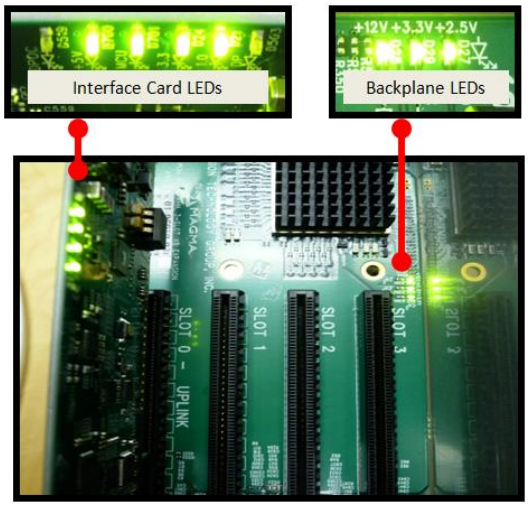
Hardware

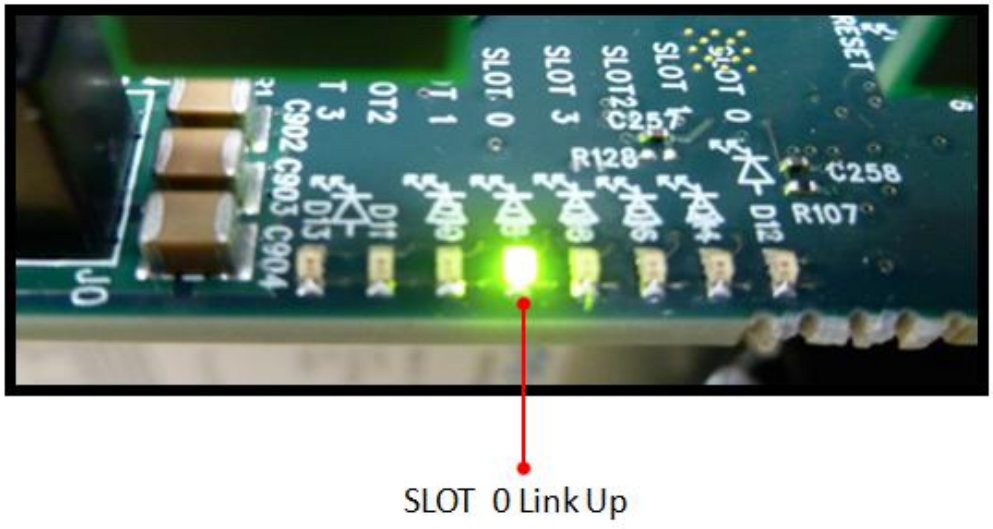
Verify Link Status on Models: 3TX, 3TS and 3TM

Thunderbolt™ 1

When the Roben-3 unit is fully operational the following GREEN LEDs are illuminated (Solid Green).

- Four Solid Green LEDs on Interface card are illuminated.
- Five Solid Green LEDs are on, if an external display device is attached to Thunderbolt port of the expansion unit.
- Three Green LEDs on backplane.
- SLOT 0 Link UP Led is illuminated. You would only see one SOLID Green LED if there are no PCIE cards in the PCIE slots.





SLOT 0 Link Up

Thunderbolt™ 2

When the Roben-3 unit is fully operational the following GREEN LEDs are illuminated (Solid Green).

- 7 Solid Green LEDs on Interface card are illuminated, with an external display device attached. See Figure T2-D.
- Five Solid Green LEDs are on, without an external display device is attached. See Figure T2-E
- Three Green LEDs on backplane. See Figure T2-F.
- SLOT 0 Link UP Led is illuminated if there are no PCIE cards in the PCIE slots. See Figure T2-G.
- If all PCIe slots are populated with PCIe cards 4 LEDs are illuminated solid green. See Figure T2-H.

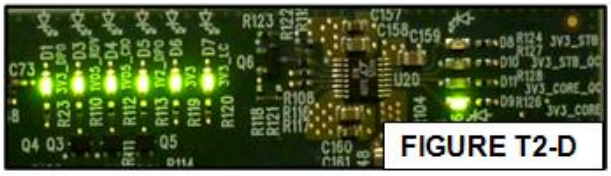


FIGURE T2-D

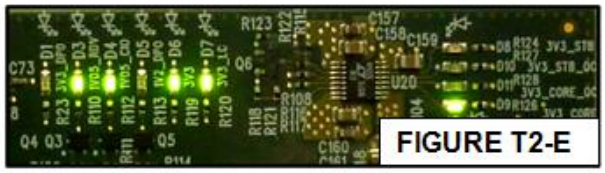


FIGURE T2-E

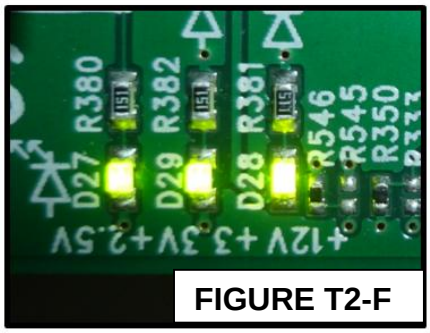


FIGURE T2-F

LED	Description
+12V, +3.3V and +2.4	are illuminated when the expansion chassis turns on

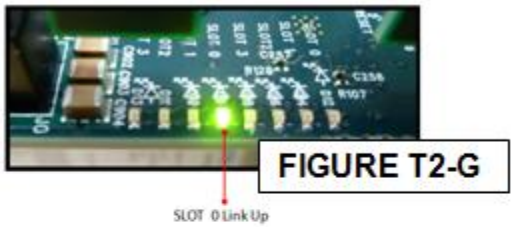


FIGURE T2-G

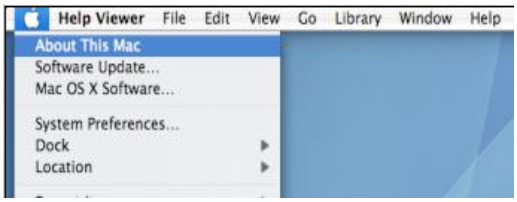
FIGURE T2-H

Software

How to check Magma device - Mac OS X

IMPORTANT
Magma requires no driver in Apple Mac Operating System.

To verify a successful installation of Magma Roben-3 on Mac select "About This Mac" under the Apple Icon.



1. Your first step will vary depending on which version of Mac OS X you are using:

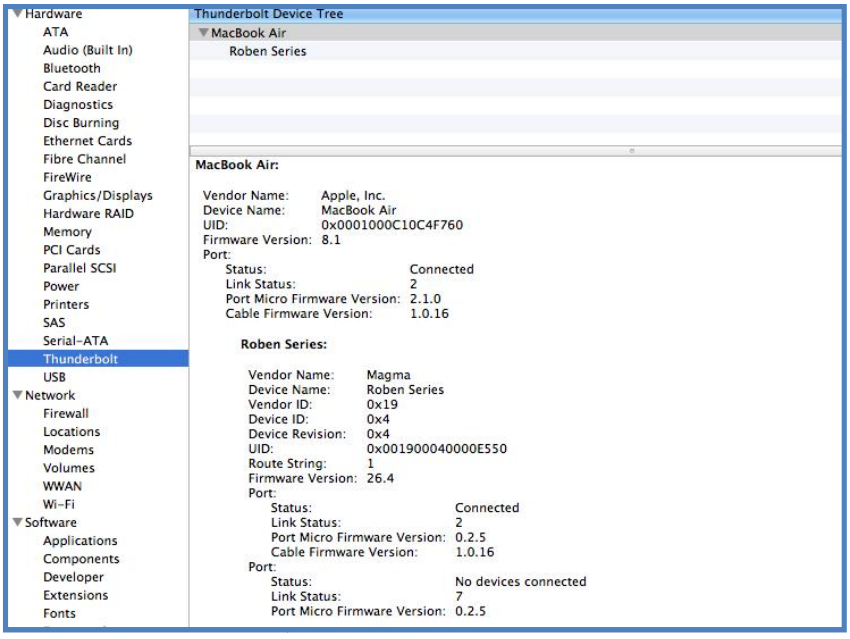
Mac OS X 10.6.8 Snow Leopard or earlier:

- Open Apple System Profiler by choosing About this Mac from the Apple ( ) menu. Then, click More Info.

OS X Lion 10.7 or later:

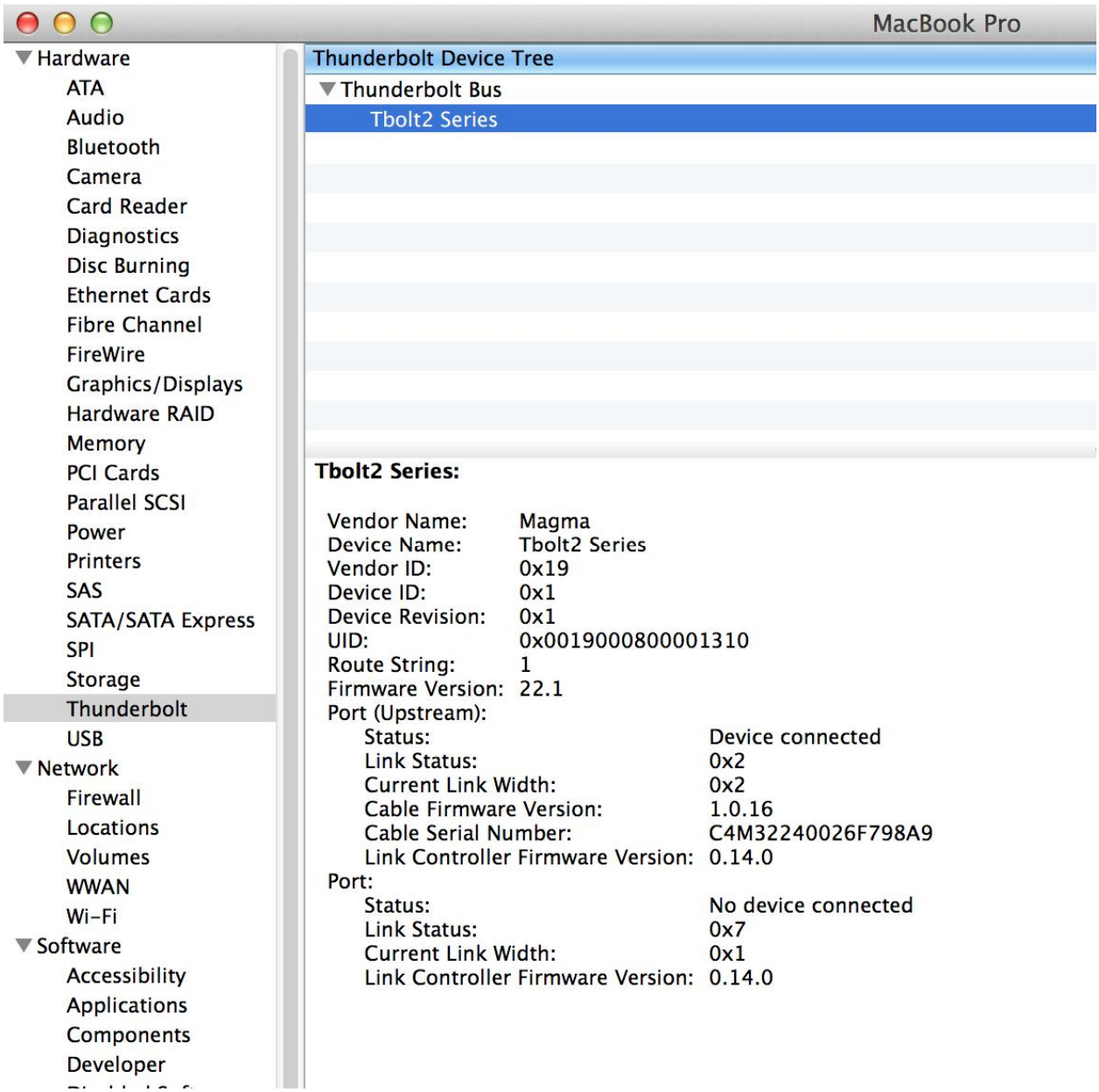
- Open System Information by choosing About this Mac from the Apple ( ) menu. Then, click System Report

2. Click Thunderbolt. This picture below applies to Thunderbolt™ 1 device.



The picture below applies for Thunderbolt™ 2. "Tbolt2 Series" is the new device name for Thunderbolt™ 2.

IMPORTANT
Thunderbolt™ 2 requires Mac OS 10.9 and above. It is highly recommend to update your Mac to the latest Operating system before using the Thunderbolt™ 2 hardware.



How To Check PCIe cards - Mac OS X

IMPORTANT
For Mac OS, a driver modification is required from the PCIe card provider. A Mac OS driver that is "Thunderbolt Aware" is required so the PCIe hardware will be recognized by Mac OS through Thunderbolt™ Technology

1. Your first step will vary depending on which version of Mac OS X you are using:

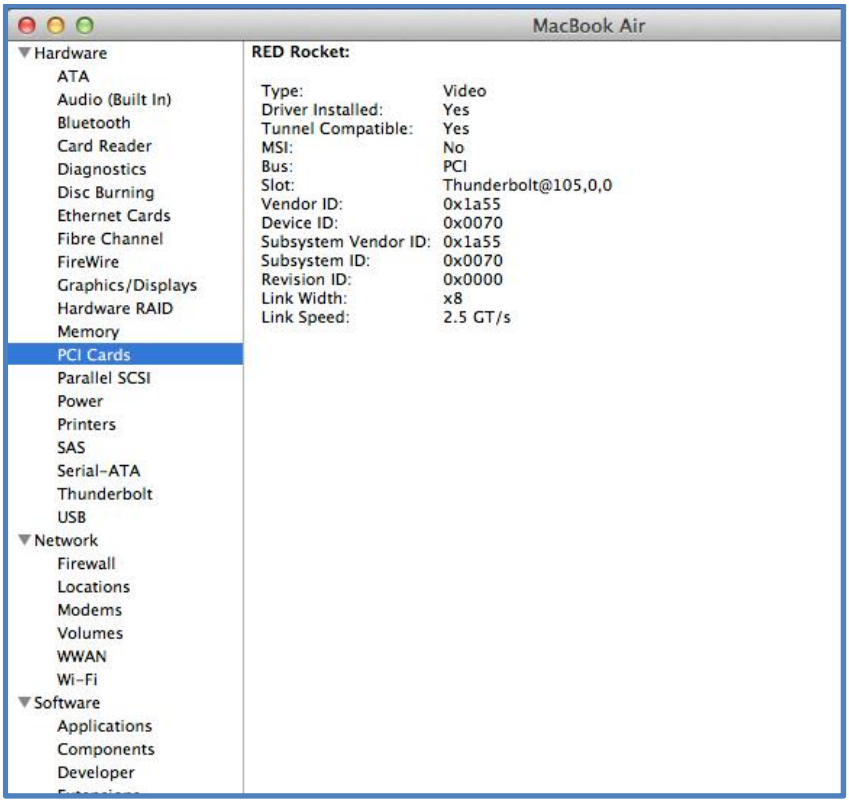
Mac OS X 10.6.8 Snow Leopard or earlier:

- Open Apple System Profiler by choosing About this Mac from the Apple ( ) menu. Then, click More Info.

OS X Lion 10.7 or later:

- Open System Information by choosing About this Mac from the Apple ( ) menu. Then, click System Report

2. Click PCI cards

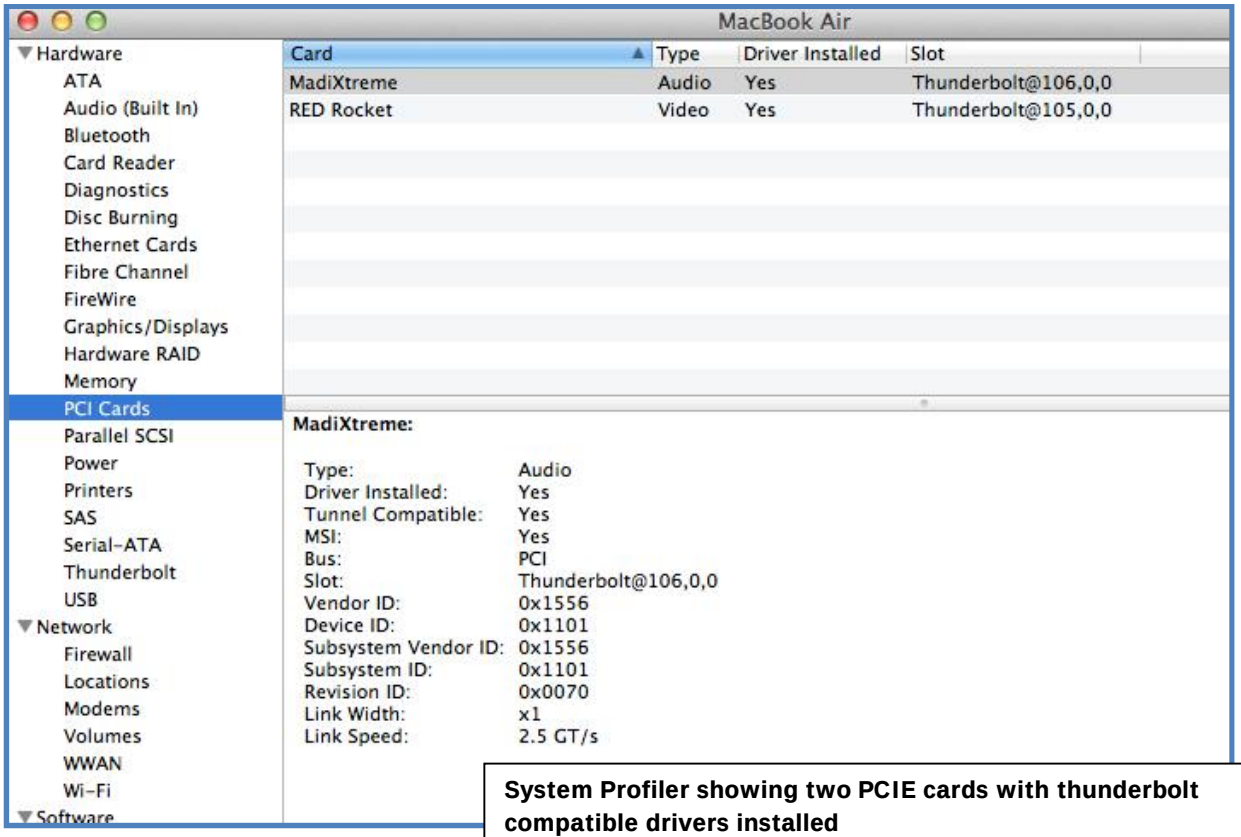


Thunderbolt Aware Driver is required for PCIe cards

For Mac OS, a Thunderbolt Aware (Compatible) driver is required because it allows PCIe cards to be detected in Roben-3. Ensure you have a "Thunderbolt Aware or Thunderbolt Compatible" driver from the PCIe card manufacturer otherwise the PCIe card will not be functional.

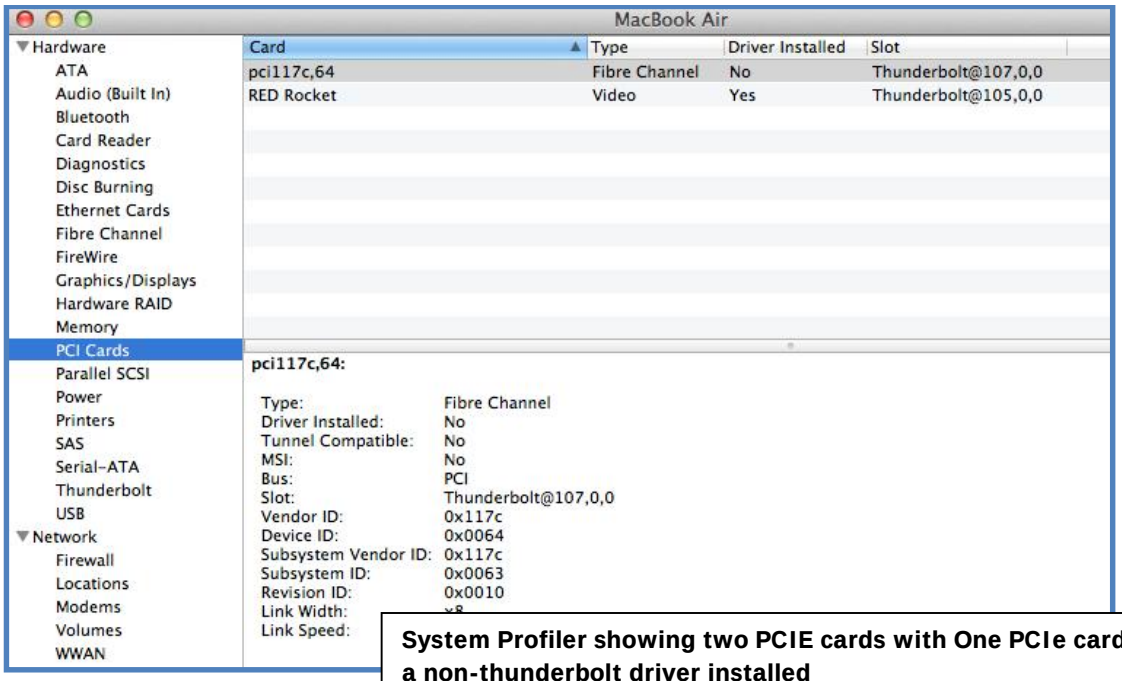
If the driver is installed, make sure it supports Thunderbolt. If the driver does not support Thunderbolt you will see a message "Driver Installed: No

Click on the specific PCIe card in question to see if it's Thunderbolt Compatible. If it shows "Yes" then it's compatible, if it shows "No", the PCIe card will not be visible in Roben-3.

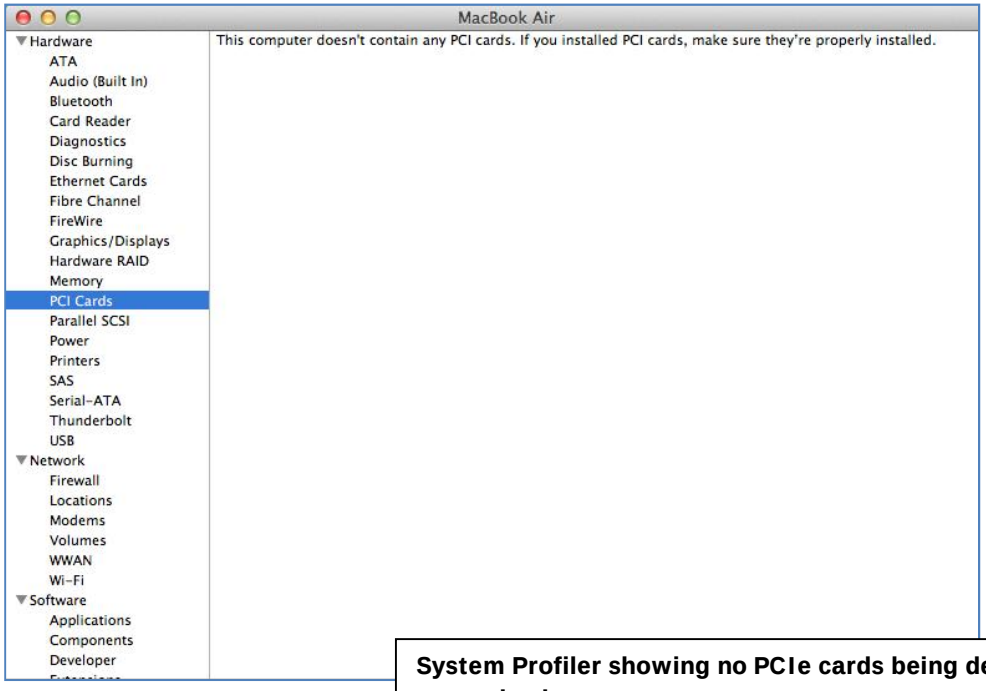


System Profiler showing two PCIE cards with thunderbolt compatible drivers installed

NOTE
Magma does not provide nor supply any third party PCIe drivers. If you need driver you must contact the vendor or manufacturer of the PCIE card. If you would like to determine whether the 3rd party PCIE card has a Thunderbolt Compatible driver or not you must also contact the vendor or manufacturer of the PCIe card.



System Profiler showing two PCIE cards with One PCIe card with a non-thunderbolt driver installed



System Profiler showing no PCIe cards being detected or recognized.

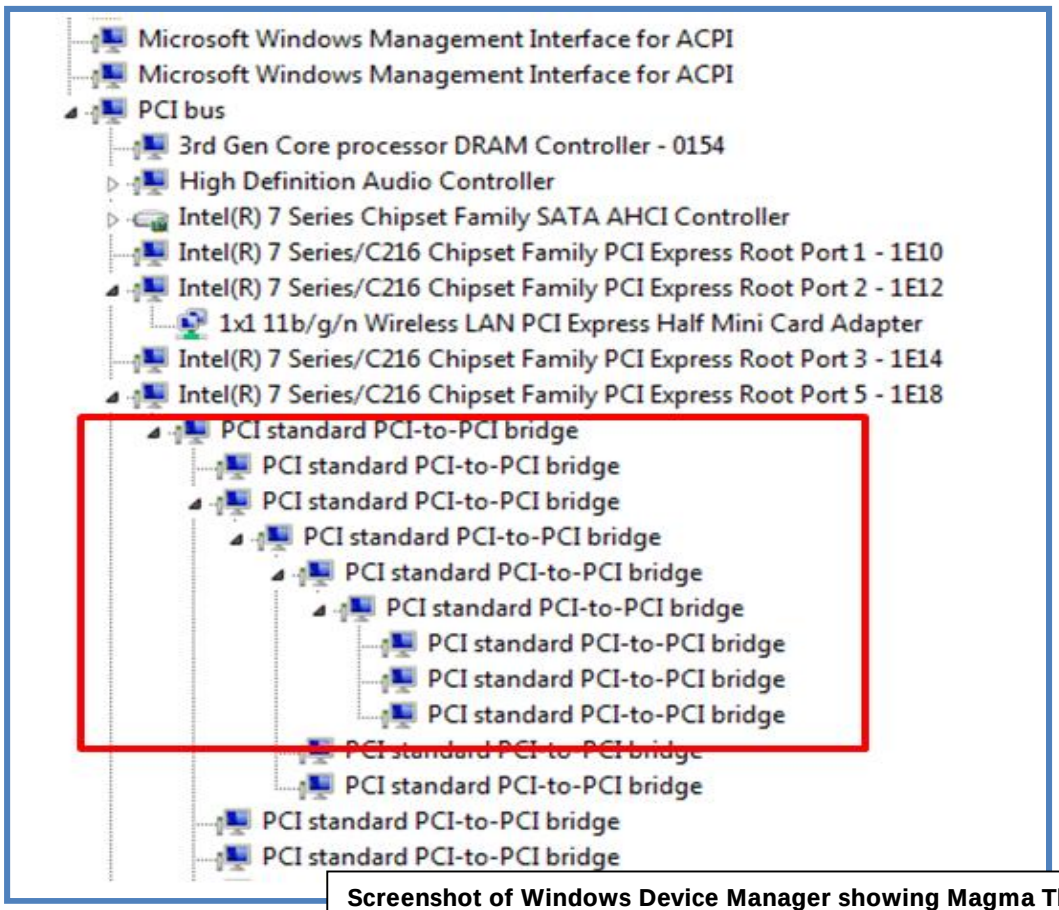
How to Check Magma Device - Windows 7 and 8

Open ACPI (BIOS) **à** Open PCI Bus **à** Click the '+' sign several times until your reach a PCI Express Root Port with a PCI Standard PCI-to-PCI Bridge beneath it.

If the verification is successful, you can install 3rd Party cards as well as auxiliary peripherals, such as hard drives into the chassis.

If, however, the installation was unsuccessful, you may not see the PCI to PCI Bridge, or it will have a small yellow symbol in front of it as shown below.

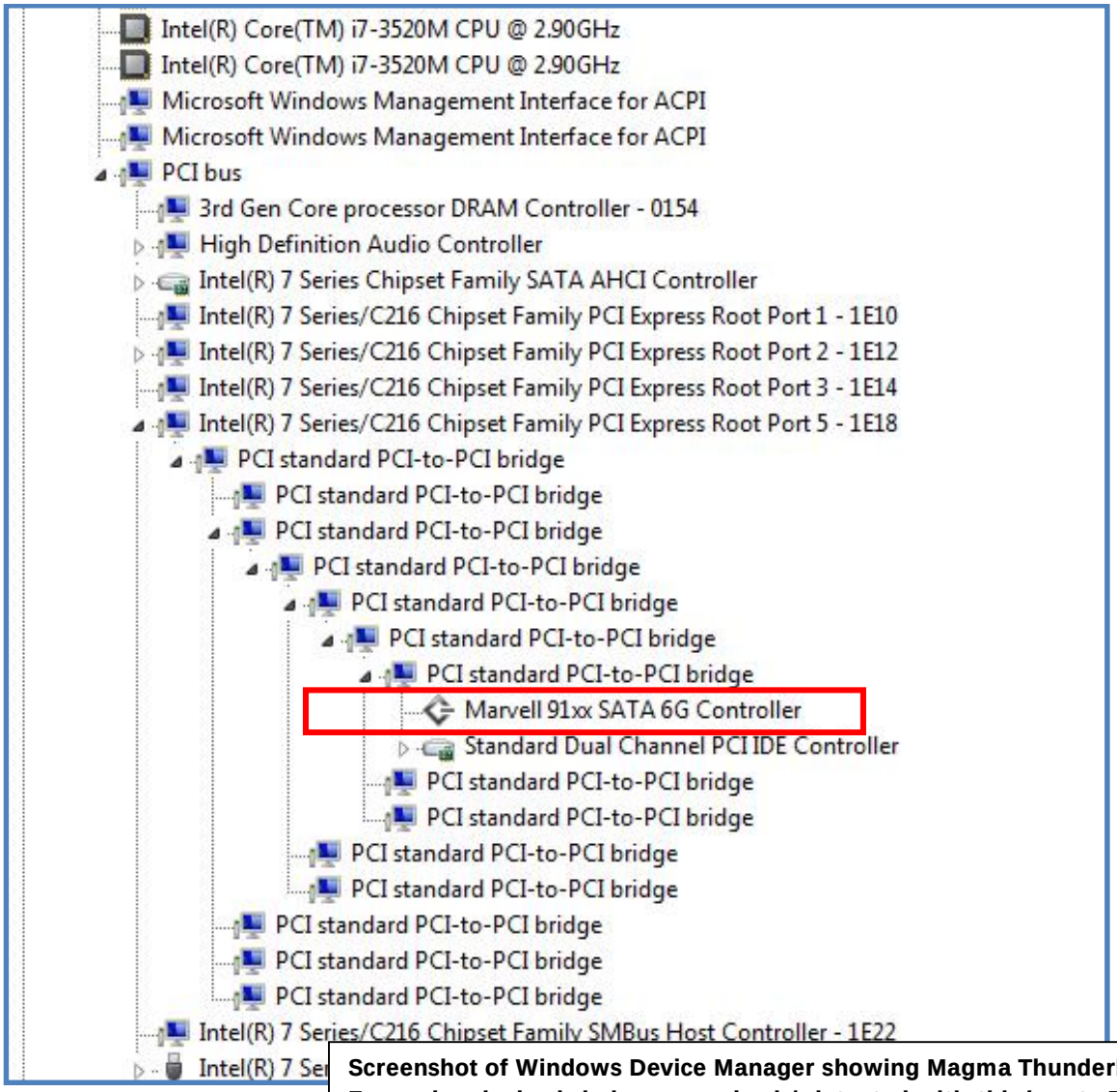
IMPORTANT
Magma requires no driver in Windows Operating System, Unix OS, Linux and other flavor of Operating Systems.


Microsoft Windows Management Interface for ACPI
Microsoft Windows Management Interface for ACPI
PCI bus
3rd Gen Core processor DRAM Controller - 0154
High Definition Audio Controller
Intel(R) 7 Series Chipset Family SATA AHCI Controller
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 2 - 1E12
1x1 11b/g/n Wireless LAN PCI Express Half Mini Card Adapter
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge

Screenshot of Windows Device Manager showing Magma Thunderbolt Expansion device is being recognized / detected *(No PICe cards installed).*

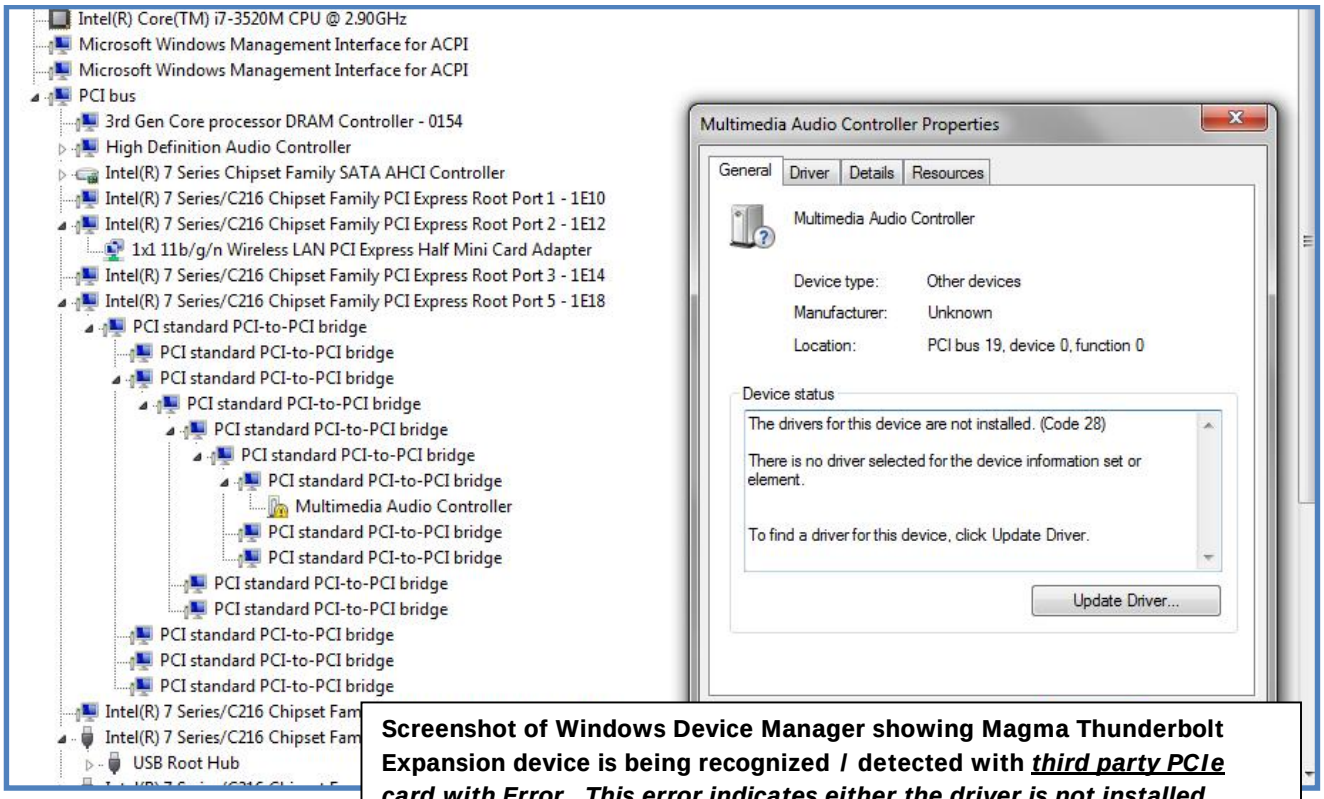
How To Check PCIe cards - Windows7 and 8

No special drivers have been required for Thunderbolt compatibility with Windows 7. As a general rule, if the PCIe card works in a workstation using Windows, it will most likely work with ExpressBox 3T, using Windows.


Intel(R) Core(TM) i7-3520M CPU @ 2.90GHz
Intel(R) Core(TM) i7-3520M CPU @ 2.90GHz
Microsoft Windows Management Interface for ACPI
Microsoft Windows Management Interface for ACPI
PCI bus
3rd Gen Core processor DRAM Controller - 0154
High Definition Audio Controller
Intel(R) 7 Series Chipset Family SATA AHCI Controller
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 2 - 1E12
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Marvell 91xx SATA 6G Controller
Standard Dual Channel PCI IDE Controller
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22

Screenshot of Windows Device Manager showing Magma Thunderbolt Expansion device is being recognized / detected with *third party PCIe card with driver installed and configured correctly*

IMPORTANT
Third party driver can be obtained from the manufacturer / vendor of the PCIe card.
Magma does not supply the driver for 3rd party PCIe card / hardware.


Intel(R) Core(TM) i7-3520M CPU @ 2.90GHz
Microsoft Windows Management Interface for ACPI
Microsoft Windows Management Interface for ACPI
PCI bus
3rd Gen Core processor DRAM Controller - 0154
High Definition Audio Controller
Intel(R) 7 Series Chipset Family SATA AHCI Controller
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 2 - 1E12
1x1 11b/g/n Wireless LAN PCI Express Half Mini Card Adapter
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Multimedia Audio Controller
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
Intel(R) 7 Series/C216 Chipset Fam
Intel(R) 7 Series/C216 Chipset Fam
USB Root Hub
Multimedia Audio Controller Properties
General
Driver
Details
Resources
Multimedia Audio Controller
Device type:
Other devices
Manufacturer:
Unknown
Location:
PCI bus 19, device 0, function 0
Device status
The drivers for this device are not installed. (Code 28)
There is no driver selected for the device information set or element.
To find a driver for this device, click Update Driver.
Update Driver...

Screenshot of Windows Device Manager showing Magma Thunderbolt Expansion device is being recognized / detected with *third party PCIe card with Error. This error indicates either the driver is not installed, missing or corrupted.*

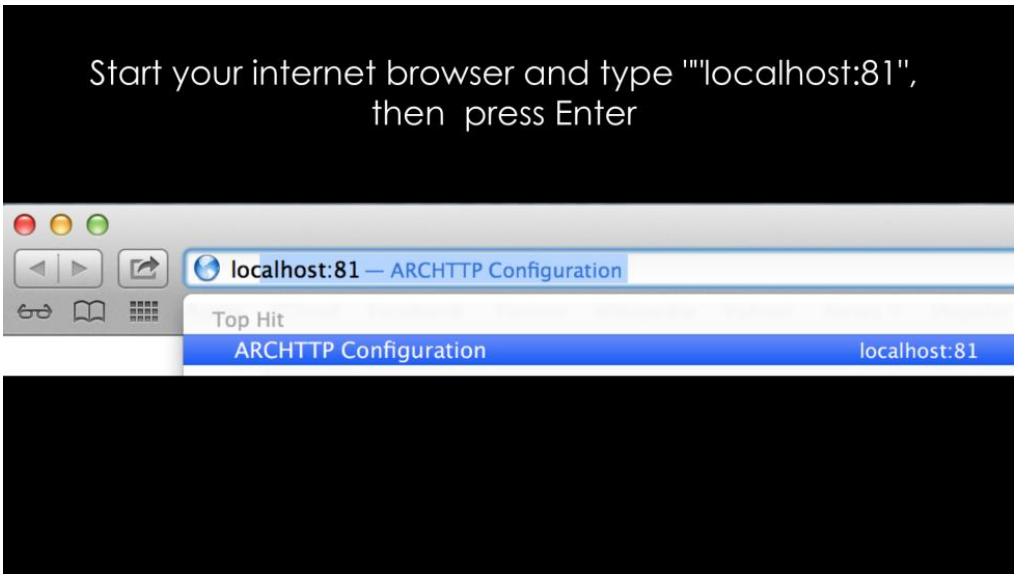
How to Configure SAS / SATA Raid

IMPORTANT
This chapter describes how to configure the disk controller card. This software configuration is specific only to vendor Areca. Different vendors (i.e. ATTO, Intel, LSI and etc.) of disk controller cards have their own software utility for RAID configuration and management. If you are using a non-Areca card make sure to check with the vendor or manufacturer of the card for further instructions.

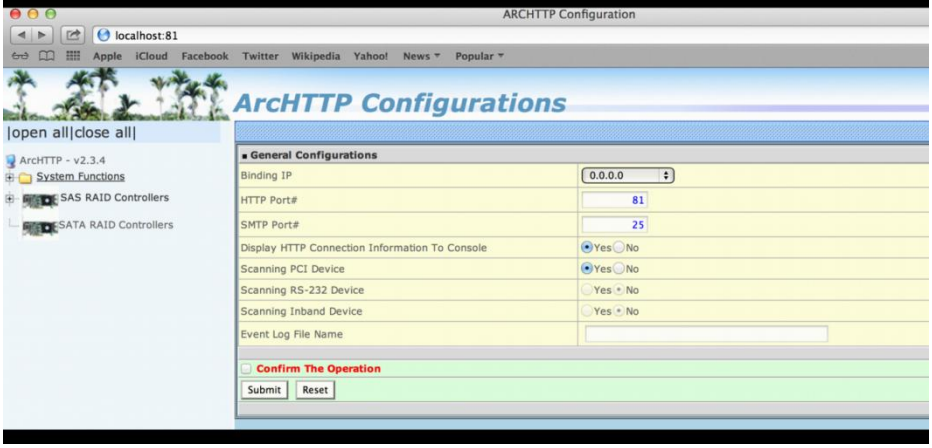
Areca has its own Graphical User Interface for RAID configuration and management. You need to install Archttp first, follow the instructions below

1. Go to http://www.areca.com.tw
2. Click Support & Downloads
3. Go to Driver / Utility, select Windows
4. Under "Windows-ArcHTTP" click, Version V2.3.4 to download
5. Save File "winhttp_V2.3.4_130325.zip"
6. Extract the File
7. Click Install.exe to install Archttp
8. After Installation, reboot Computer

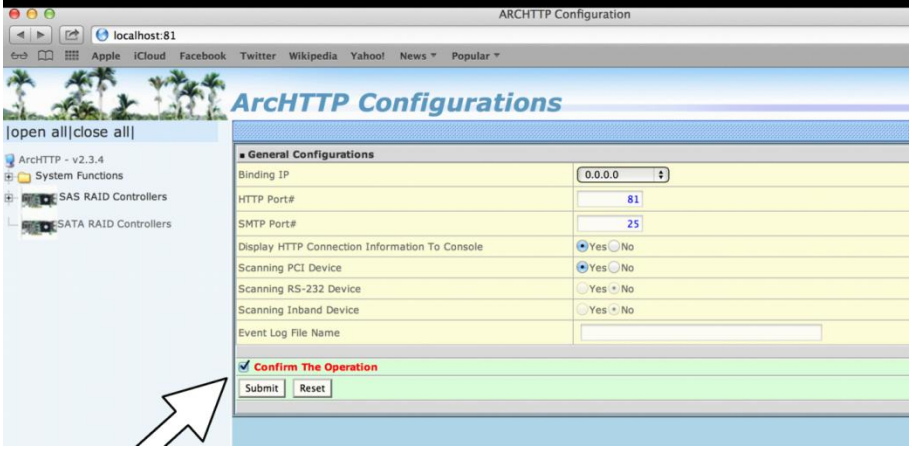
NOTE: These steps are applicable to Windows 7, Windows 8 and Mac OSx. Use Firefox / Mozilla as your Browser to launch the ARCHTTP.



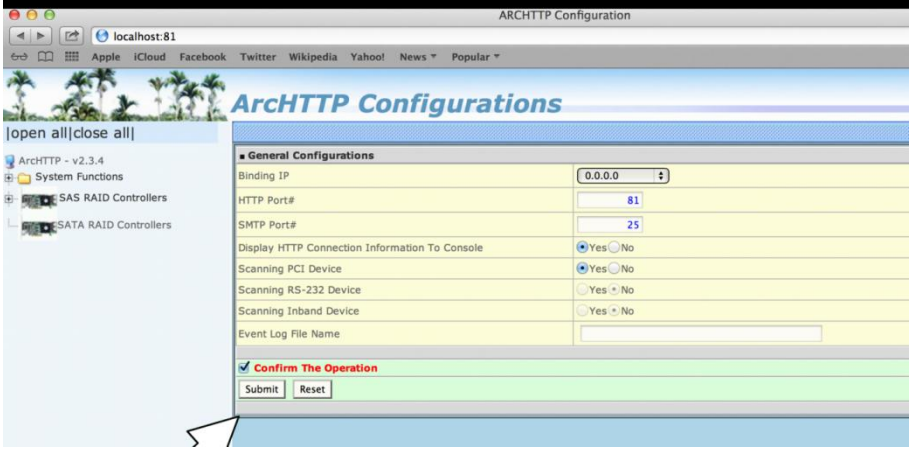
General Configurations screen comes up



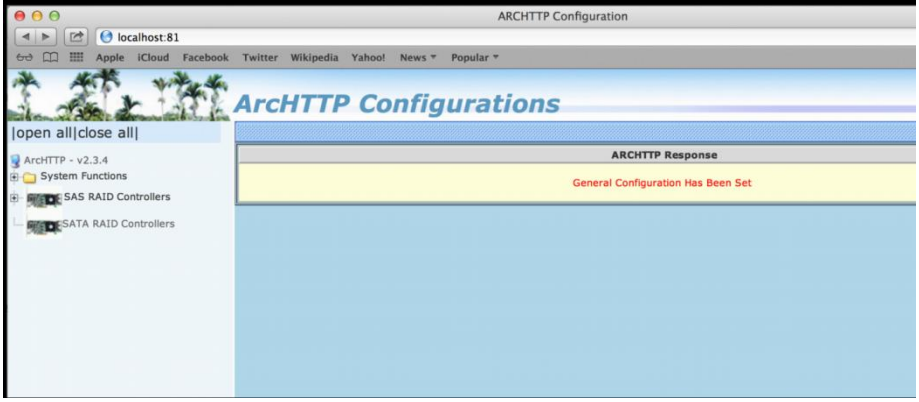
Check "Confirm The Operation" box



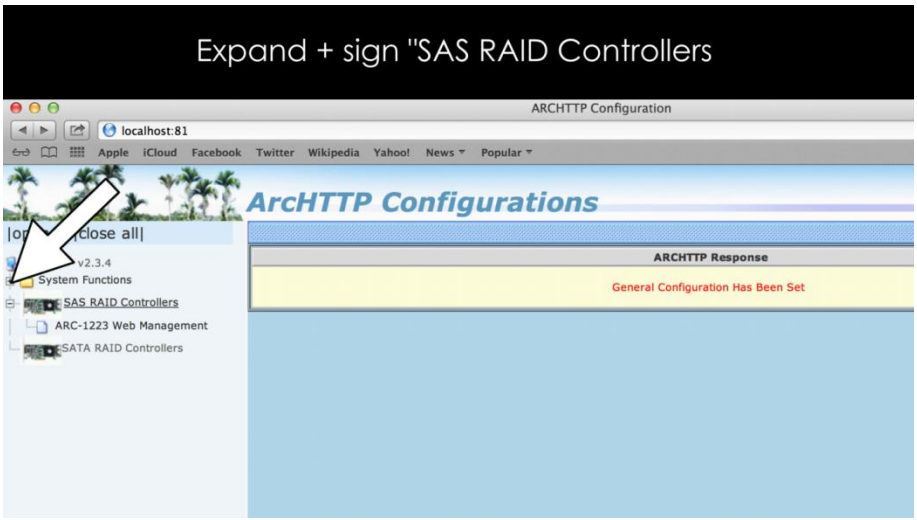
Click Submit



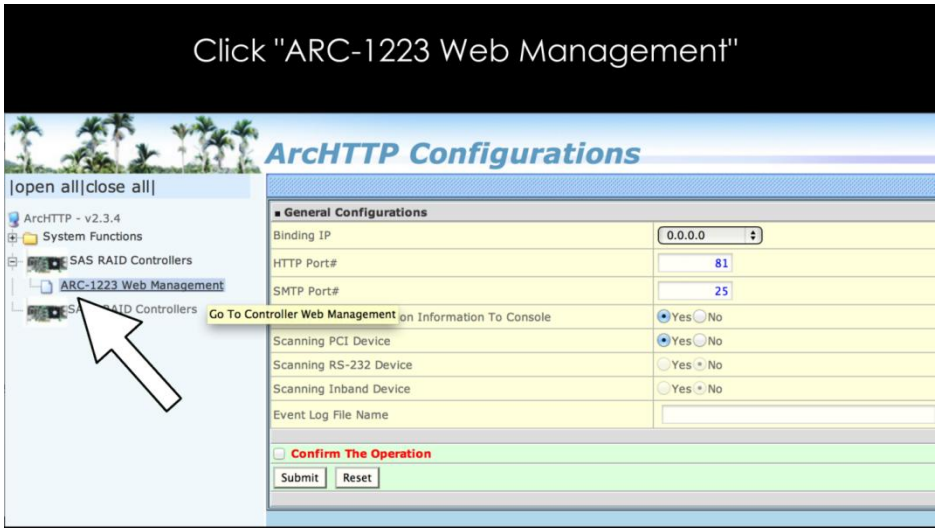
"General Configurations Has Been Set-up" screen comes up



Expand + sign "SAS RAID Controllers

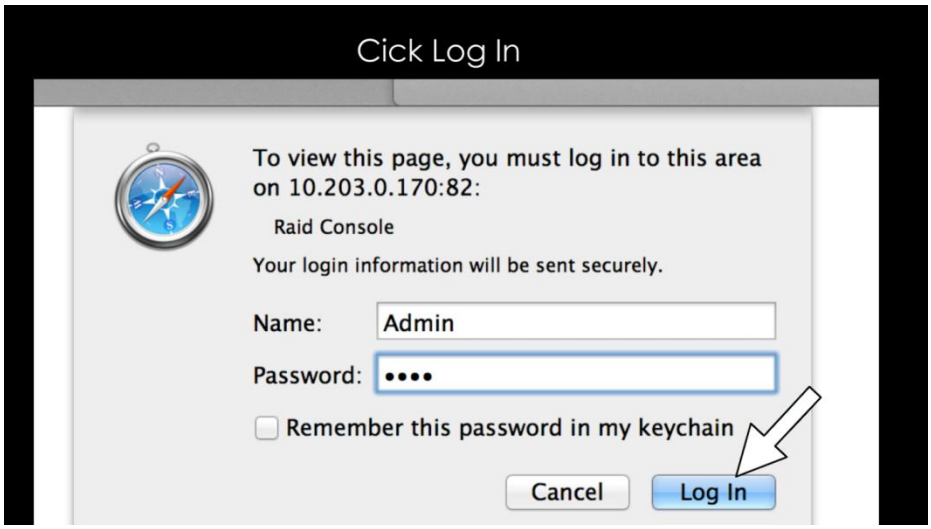


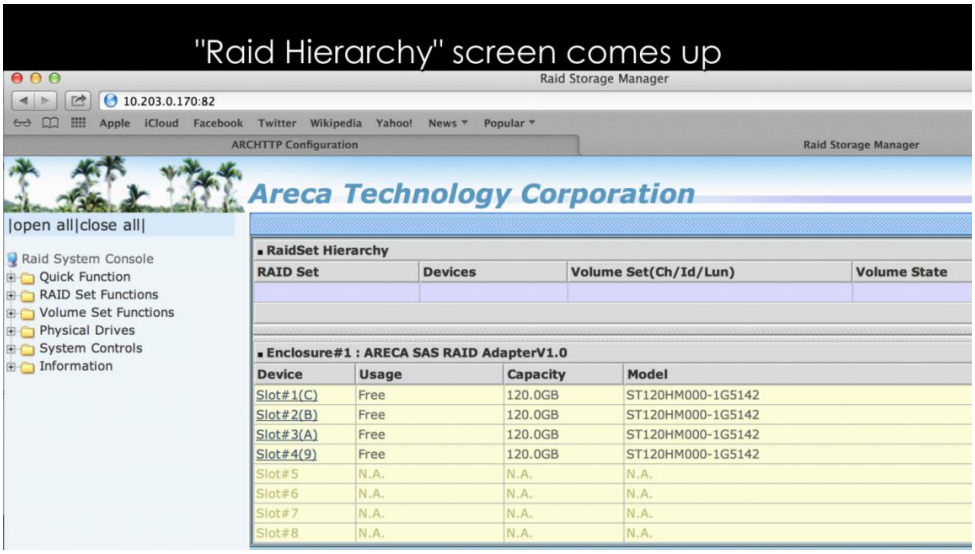
Click "ARC-1223 Web Management"

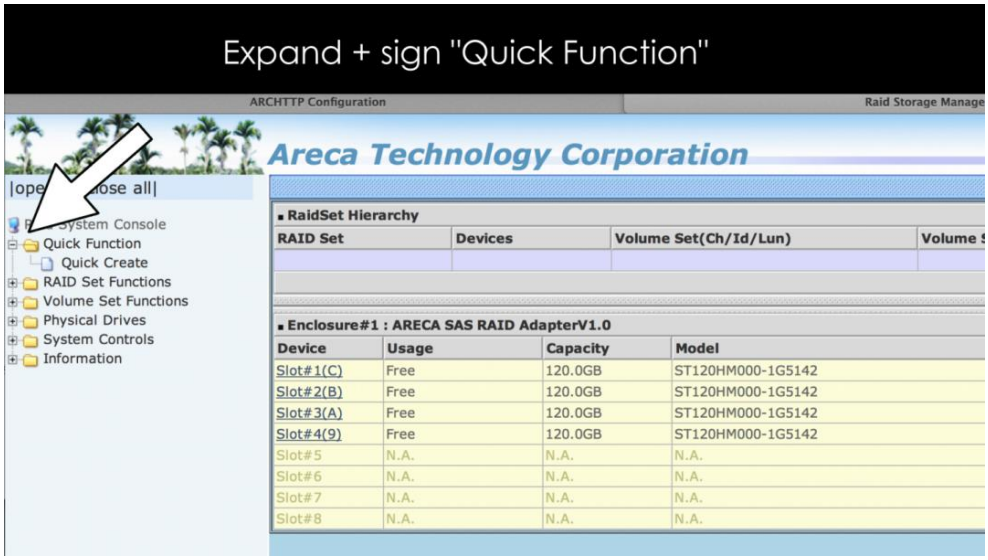


Name & Password screen comes up
Untitled
10.203.0.170:82
iCloud Facebook Twitter Wikipedia Yahoo! News Popular
ARCHTTP Configuration
To view this page, you must log in to this area on 10.203.0.170:82:
Raid Console
Your login information will be sent securely.
Name:
Password:
Remember this password in my keychain
Cancel
Log In

Name is Admin. Password is 0000
Untitled
10.203.0.170:82
iCloud Facebook Twitter Wikipedia Yahoo! News Popular
ARCHTTP Configuration
To view this page, you must log in to this area on 10.203.0.170:82:
Raid Console
Your login information will be sent securely.
Name:
Password:
Remember this password in my keychain
Cancel
Log In


Cick Log In
To view this page, you must log in to this area on 10.203.0.170:82:
Raid Console
Your login information will be sent securely.
Name:
Admin
Password:
Remember this password in my keychain
Cancel
Log In


"Raid Hierarchy" screen comes up
Raid Storage Manager
10.203.0.170:82
ARCHTTP Configuration
Raid Storage Manager
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
RaidSet Hierarchy
RAID Set
Devices
Volume Set(Ch/Id/Lun)
Volume State
Enclosure#1 : ARECA SAS RAID AdapterV1.0
Device
Usage
Capacity
Model
Slot#1(C) Free 120.0GB ST120HM000-1G5142
Slot#2(B) Free 120.0GB ST120HM000-1G5142
Slot#3(A) Free 120.0GB ST120HM000-1G5142
Slot#4(9) Free 120.0GB ST120HM000-1G5142
Slot#5 N.A. N.A. N.A.
Slot#6 N.A. N.A. N.A.
Slot#7 N.A. N.A. N.A.
Slot#8 N.A. N.A. N.A.


Expand + sign "Quick Function"
ARCHTTP Configuration
Areca Technology Corporation
Quick Function
Quick Create
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
RaidSet Hierarchy
RAID Set
Devices
Volume Set(Ch/Id/Lun)
Enclosure#1 : ARECA SAS RAID AdapterV1.0
Device
Usage
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Slot#1(C) Free 120.0GB ST120HM000-1G5142
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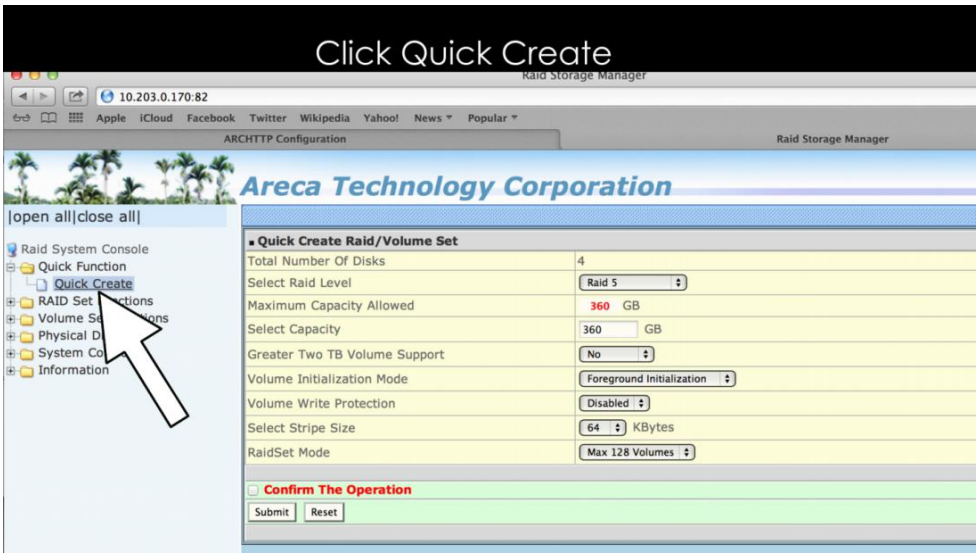
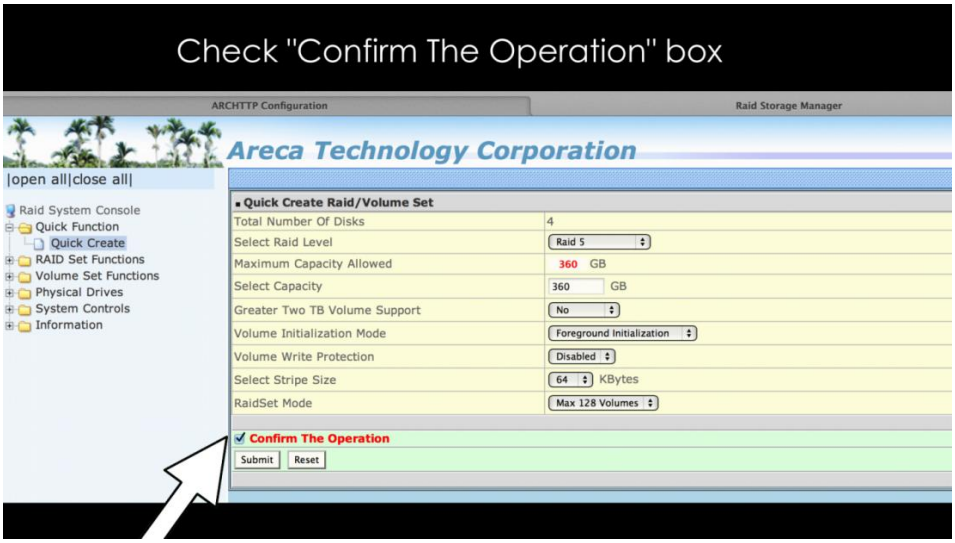
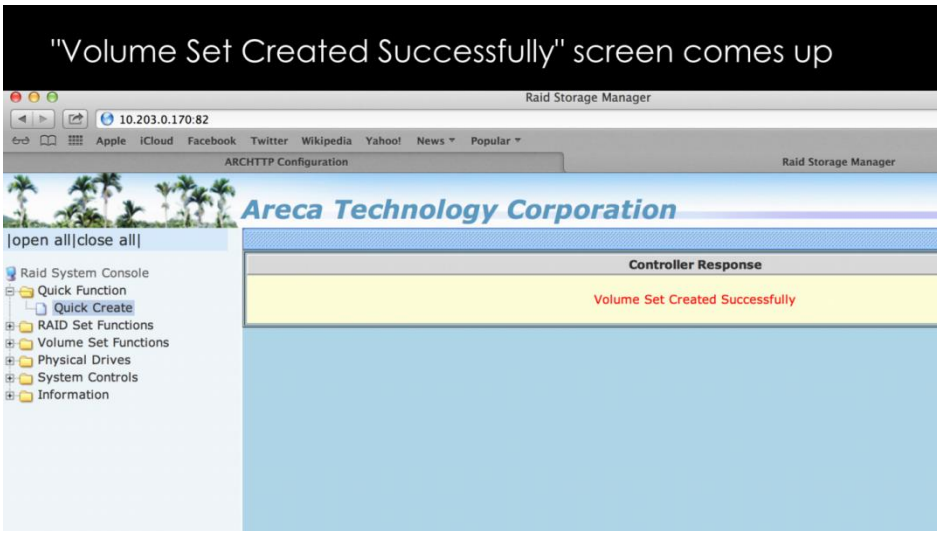
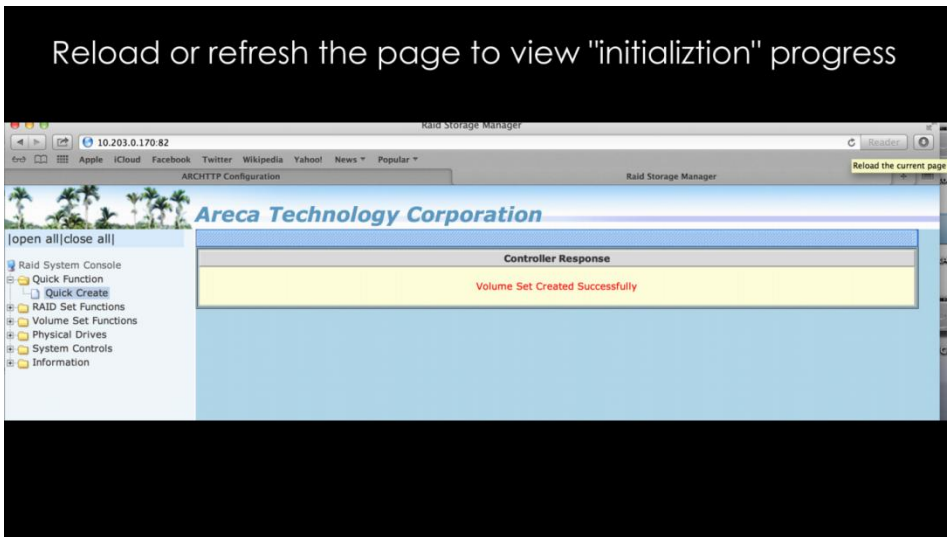
Slot#5 N.A. N.A. N.A.
Slot#6 N.A. N.A. N.A.
Slot#7 N.A. N.A. N.A.
Slot#8 N.A. N.A. N.A.

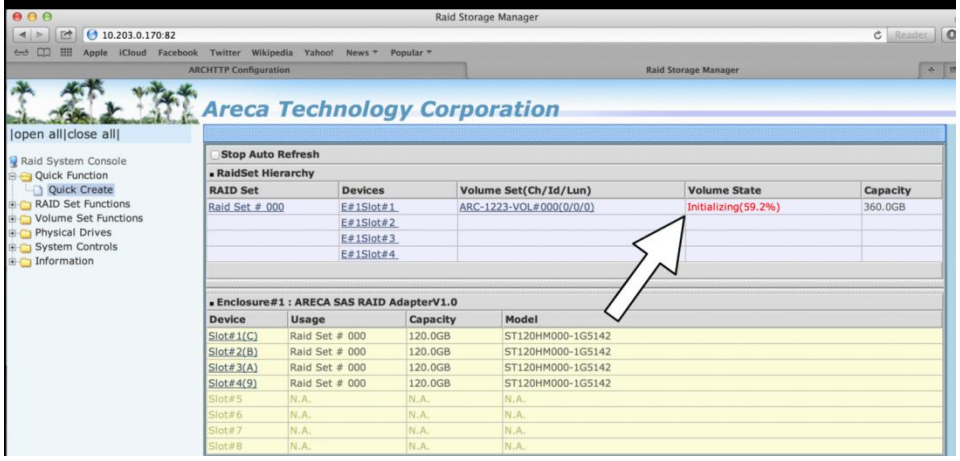

Click Quick Create
10.203.0.170:82
ARCHTTP Configuration
Raid Storage Manager
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
Quick Create
Information
Quick Create Raid/Volume Set
Total Number Of Disks 4
Select Raid Level Raid 5
Maximum Capacity Allowed 360 GB
Select Capacity 360 GB
Greater Two TB Volume Support No
Volume Initialization Mode Foreground Initialization
Volume Write Protection Disabled
Select Stripe Size 64 KBytes
RaidSet Mode Max 128 Volumes
Confirm The Operation
Submit
Reset


Check "Confirm The Operation" box
ARCHTTP Configuration
Raid Storage Manager
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
Quick Create
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
Quick Create Raid/Volume Set
Total Number Of Disks
4
Select Raid Level
Raid 5
Maximum Capacity Allowed
360 GB
Select Capacity
360 GB
Greater Two TB Volume Support
No
Volume Initialization Mode
Foreground Initialization
Volume Write Protection
Disabled
Select Stripe Size
64 KBytes
RaidSet Mode
Max 128 Volumes
Confirm The Operation
Submit
Reset

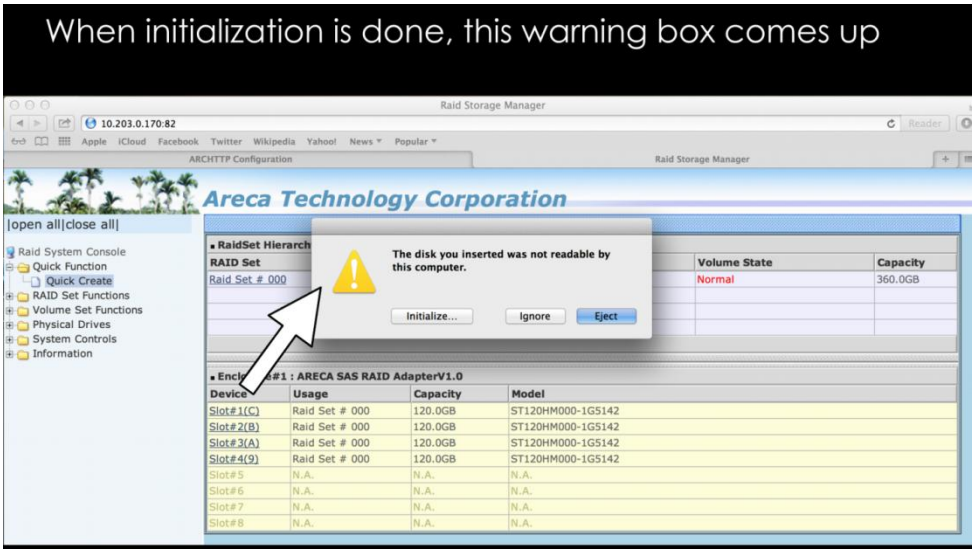

"Volume Set Created Successfully" screen comes up
Raid Storage Manager
10.203.0.170:82
Apple iCloud Facebook Twitter Wikipedia Yahoo! News Popular
ARCHTTP Configuration
Raid Storage Manager
Areca Technology Corporation
|open all|close all|
Raid System Console
Quick Function
Quick Create
RAID Set Functions
Volume Set Functions
Physical Drives
System Controls
Information
Controller Response
Volume Set Created Successfully


Reload or refresh the page to view "initializtion" progress
Areca Technology Corporation
Controller Response
Volume Set Created Successfully

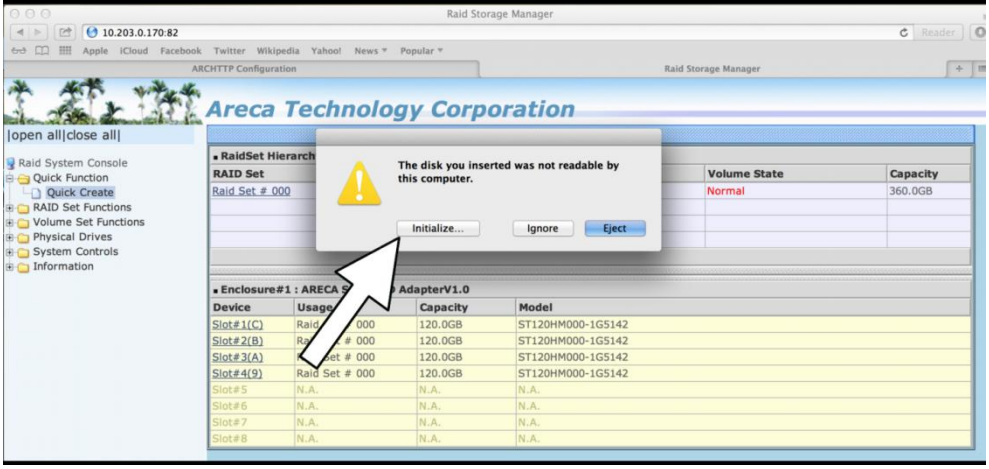
Initialization in progress



When initialization is done, this warning box comes up



Click "Initialize"



After completing the Raid setup you must activate the drive and create partition. Different Operating Systems have their own utility for creating partitions. On Mac OS you have to use the Disk Utility. On Windows you have to use Disk Management.

IMPORTANT
"The Disk Utility on Mac OSx and Disk Management on Windows OS" are applicable to all disk controller cards / vendors.

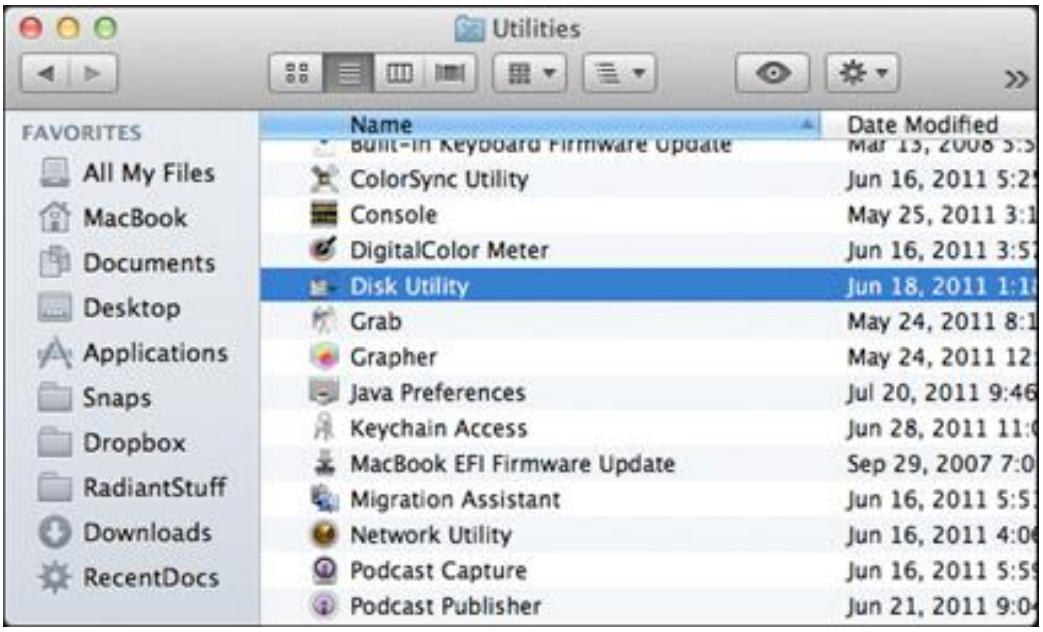
Disk Utility on Mac OS X

What is Disk Utility?

Disk Utility is a free application that's built into OS X that can perform lots of useful actions, is a multipurpose, easy-to-use tool for working with hard drives and drive images. Disk Utility can erase, format, repair, and partition hard drives, as well as create RAID arrays.

Where is Disk Utility?

Open up your Applications folder and open the Utilities folder.



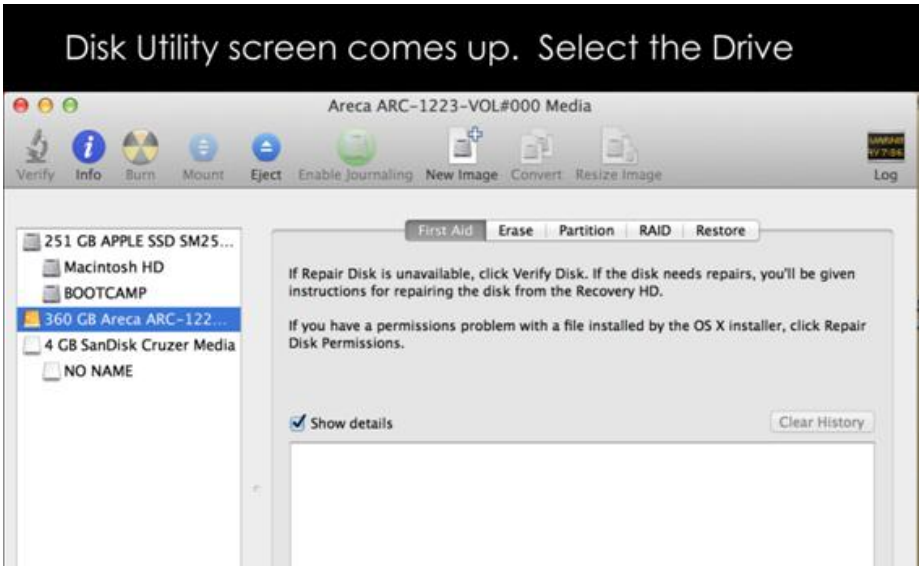
The version and features of Disk Utility depend on the version of Mac OS X. The following image demonstrates Disk Utility in Mac OS X.

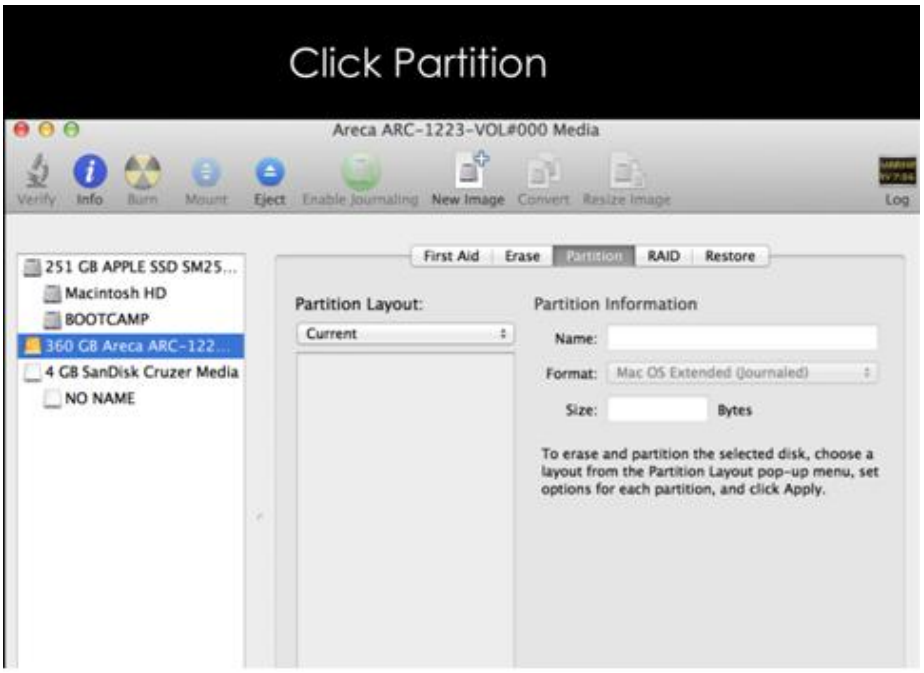
The left pane shows the "disks" currently connected to your Mac. You'll see the hard drive that has the

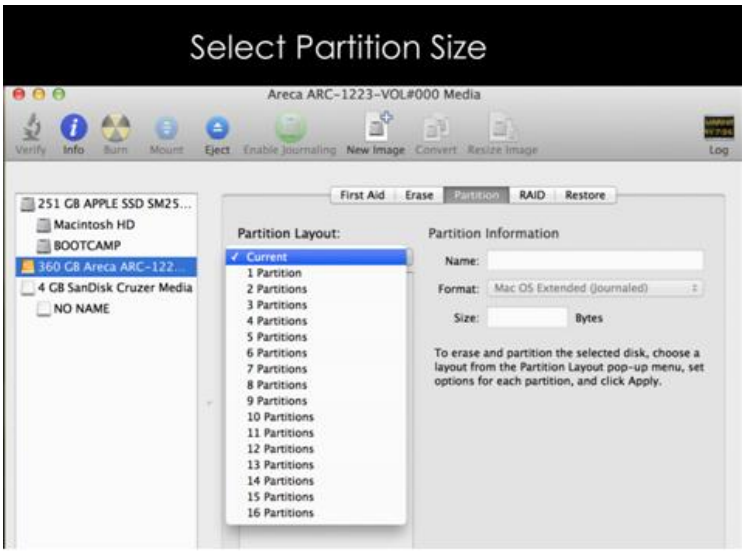
"Macintosh HD" partition. If you have additional internal hard drives or external hard drives connected to your Mac, they too will be visible.

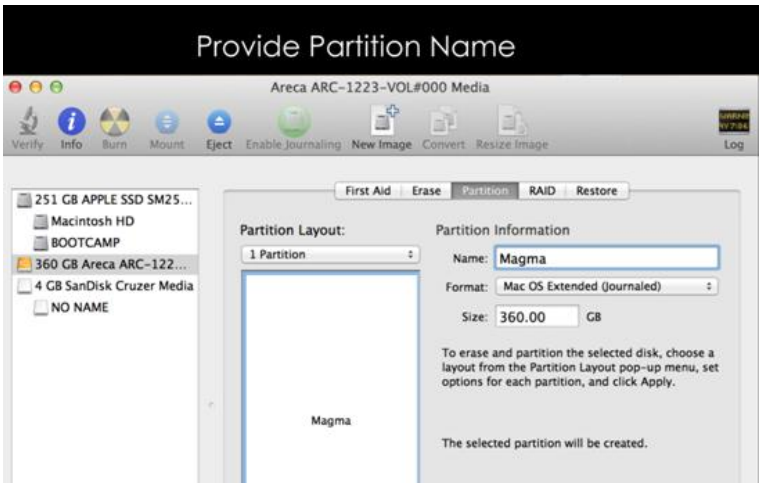
Start Disk Utility

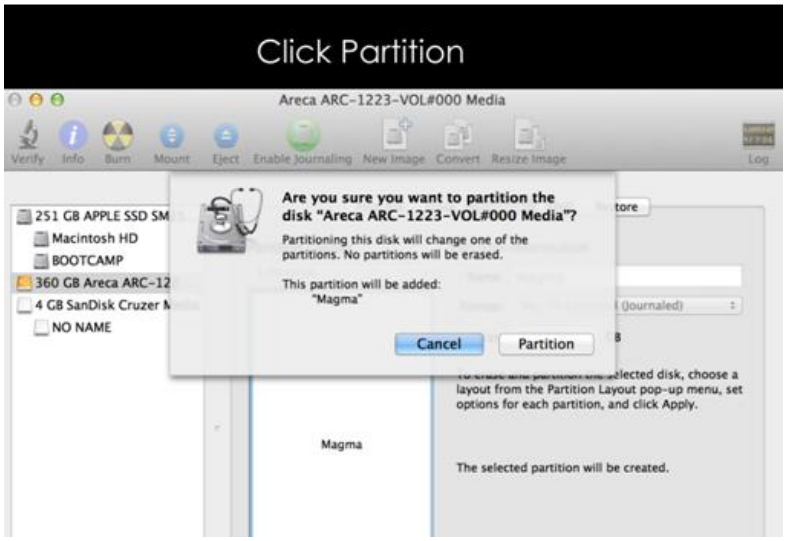
Once you find Disk Utility, launch it and you should see a window something like the one below. Any drive connected to your machine, internal or external, should appear in the menu on the left.

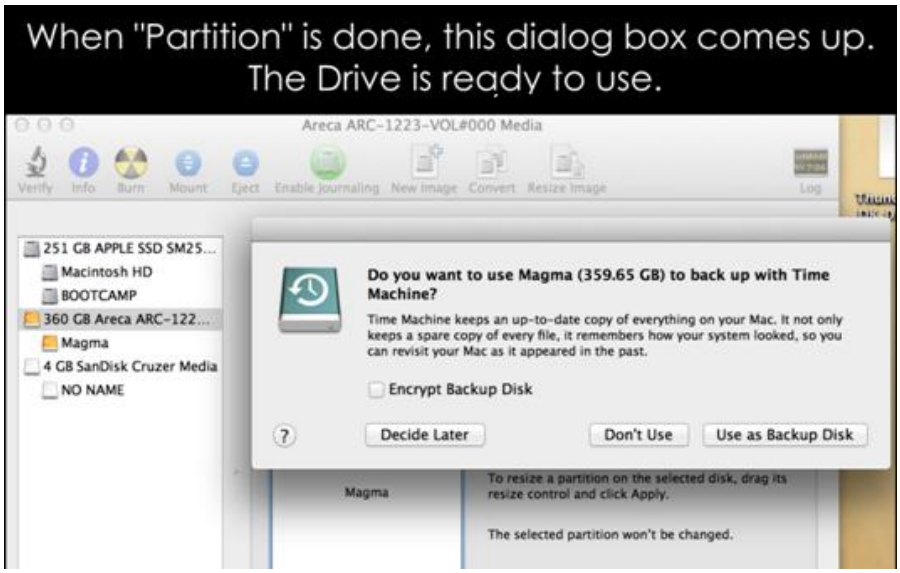





Select Partition Size
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM25...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-122...
4 GB SanDisk Cruzer Media
NO NAME
First Aid
Erase
Partition
RAID
Restore
Partition Layout:
Current
1 Partition
2 Partitions
3 Partitions
4 Partitions
5 Partitions
6 Partitions
7 Partitions
8 Partitions
9 Partitions
10 Partitions
11 Partitions
12 Partitions
13 Partitions
14 Partitions
15 Partitions
16 Partitions
Partition Information
Name:
Format:
Mac OS Extended (Journaled)
Size:
Bytes
To erase and partition the selected disk, choose a layout from the Partition Layout pop-up menu, set options for each partition, and click Apply.


Provide Partition Name
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM25...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-122...
4 GB SanDisk Cruzer Media
NO NAME
First Aid
Erase
Partition
RAID
Restore
Partition Layout:
1 Partition
Partition Information
Name:
Magma
Format:
Mac OS Extended (Journaled)
Size:
360.00
GB
To erase and partition the selected disk, choose a layout from the Partition Layout pop-up menu, set options for each partition, and click Apply.
Magma
The selected partition will be created.


Click Partition
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-12...
4 GB SanDisk Cruzer M...
NO NAME
Are you sure you want to partition the disk "Areca ARC-1223-VOL#000 Media"?
Partitioning this disk will change one of the partitions. No partitions will be erased.
This partition will be added:
"Magma"
Cancel
Partition
(Journaled)
layout from the Partition Layout pop-up menu, set options for each partition, and click Apply.
Magma
The selected partition will be created.


When "Partition" is done, this dialog box comes up.
The Drive is ready to use.
Areca ARC-1223-VOL#000 Media
Verify
Info
Burn
Mount
Eject
Enable Journaling
New Image
Convert
Resize Image
Log
251 GB APPLE SSD SM25...
Macintosh HD
BOOTCAMP
360 GB Areca ARC-122...
Magma
4 GB SanDisk Cruzer Media
NO NAME
Do you want to use Magma (359.65 GB) to back up with Time Machine?
Time Machine keeps an up-to-date copy of everything on your Mac. It not only keeps a spare copy of every file, it remembers how your system looked, so you can revisit your Mac as it appeared in the past.
Encrypt Backup Disk
Decide Later
Don't Use
Use as Backup Disk
Magma
To resize a partition on the selected disk, drag its resize control and click Apply.
The selected partition won't be changed.

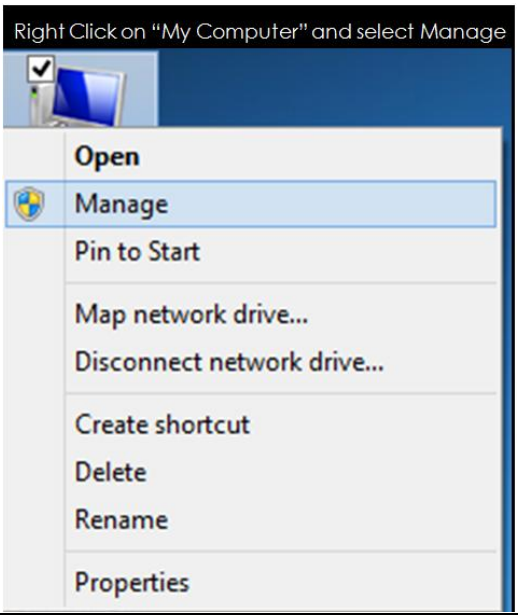
Disk Management on Windows OS

What is Disk Management?

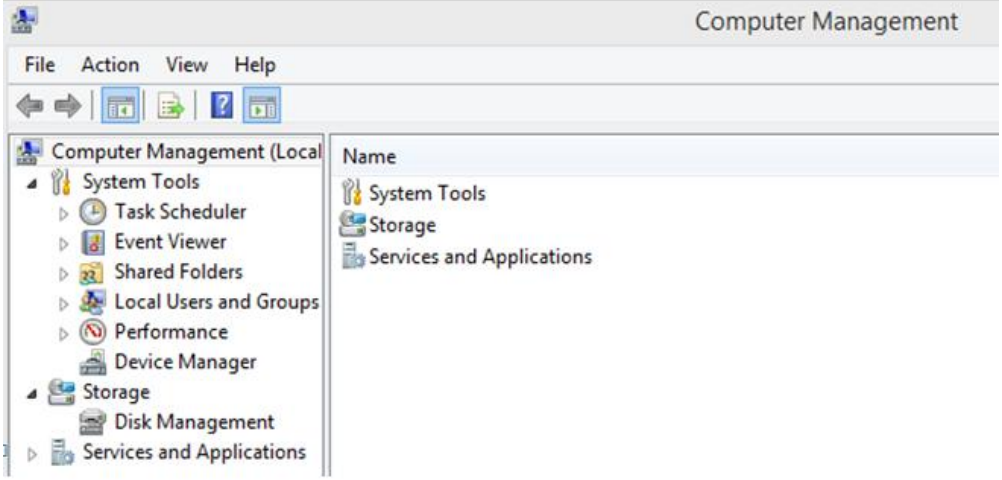
Disk Management is an extension of the Microsoft Management Console that allows full management of the disk-based hardware recognized by Windows. It is used to manage the drives installed in a computer - like hard disk drives (internal and external), optical disk drives, and flash drives. Disk Management can be used to partition drives, format drives, assign drive letters, and much more

How To Access Disk Management:

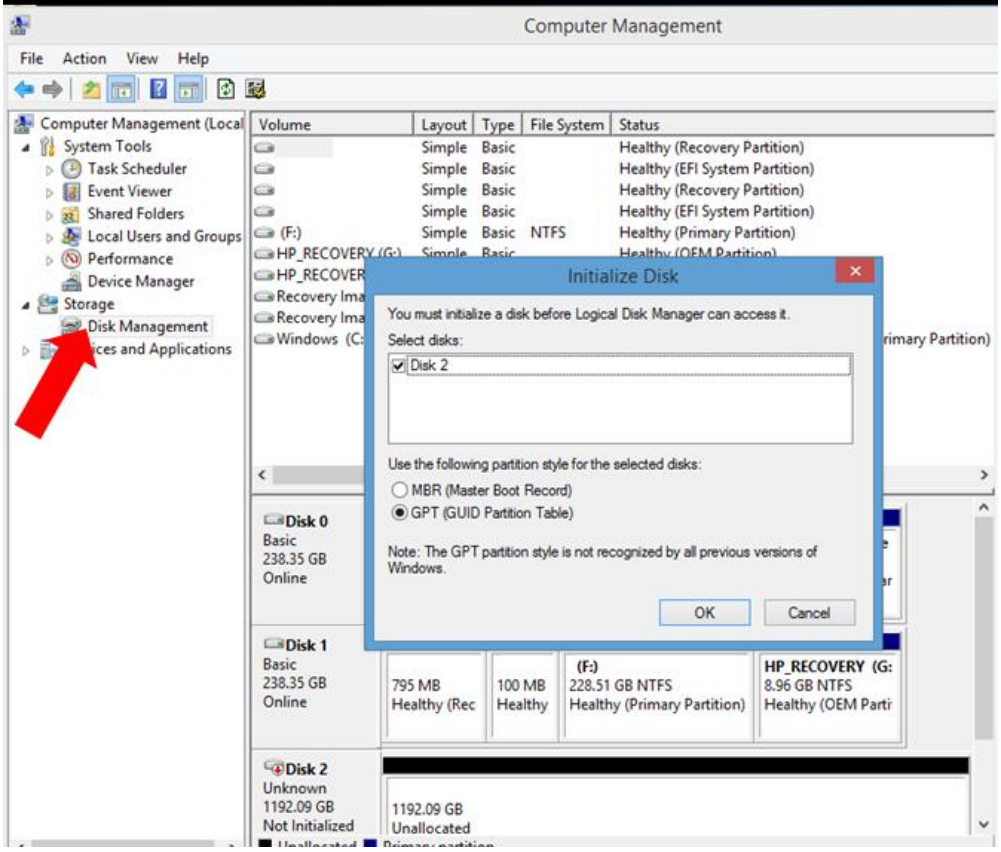
The most common way to access Disk Management is via Computer Management, see image below.



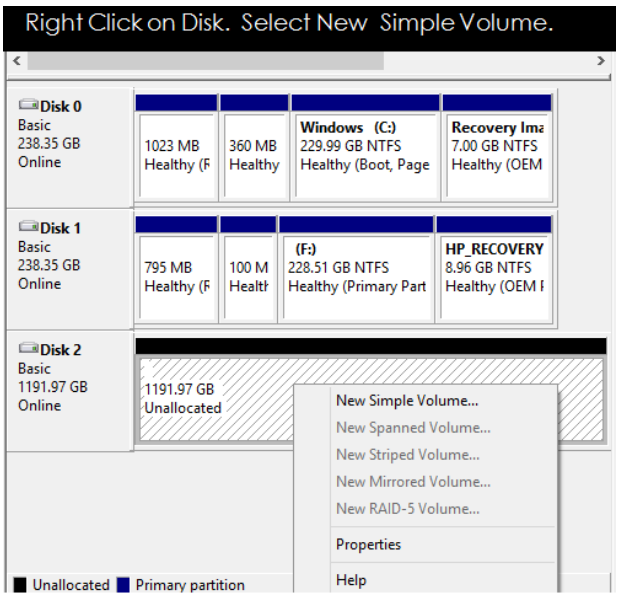
Computer Management Screen comes up



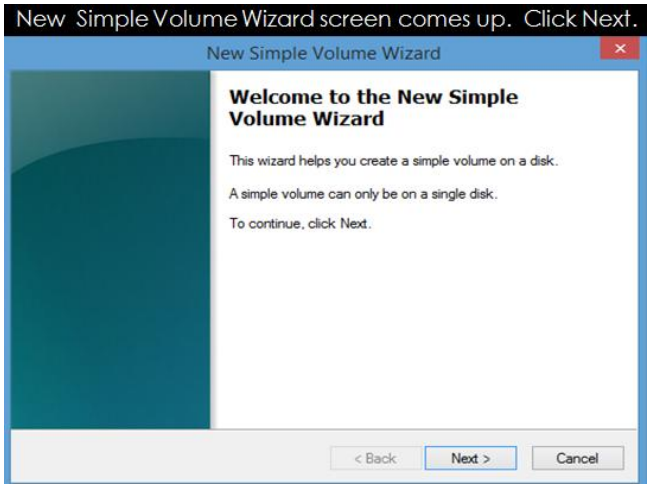
Right Click on Disk Management. Initialize Disk screen pops up. Click Ok.



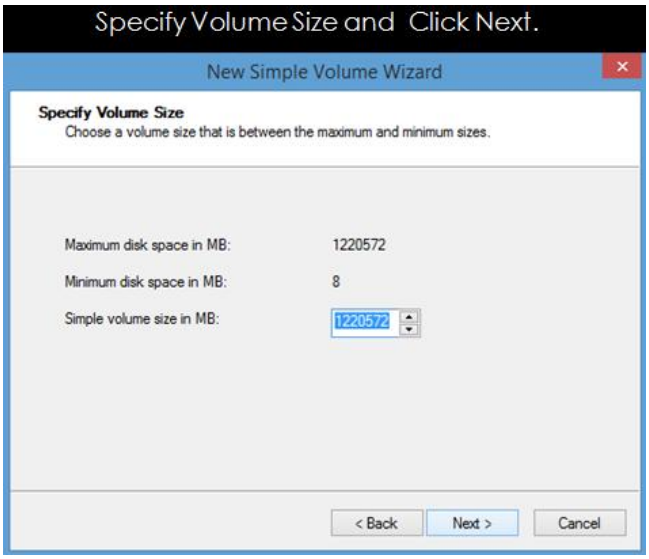
Right Click on Disk. Select New Simple Volume.



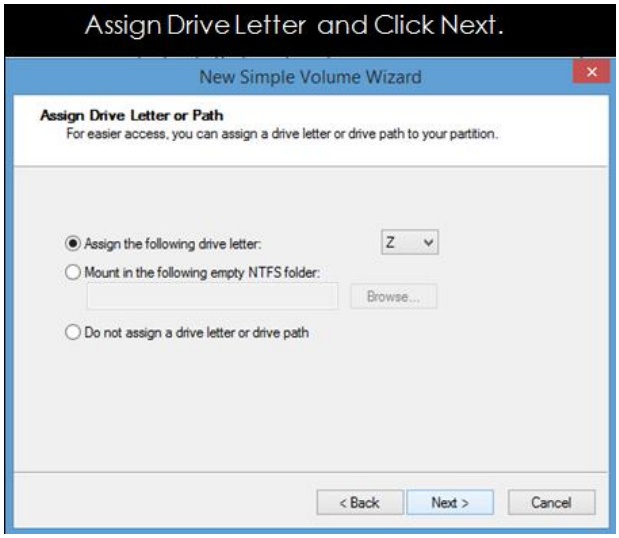
New Simple Volume Wizard screen comes up. Click Next.


New Simple Volume Wizard
Welcome to the New Simple Volume Wizard
This wizard helps you create a simple volume on a disk.
A simple volume can only be on a single disk.
To continue, click Next.
< Back
Next >
Cancel

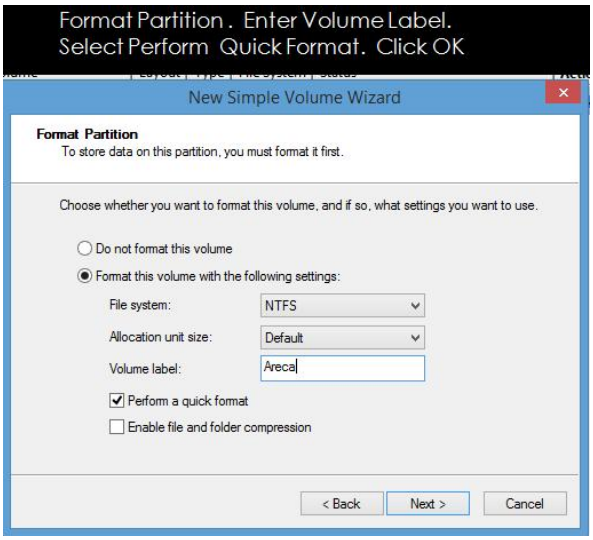
Specify Volume Size and Click Next.



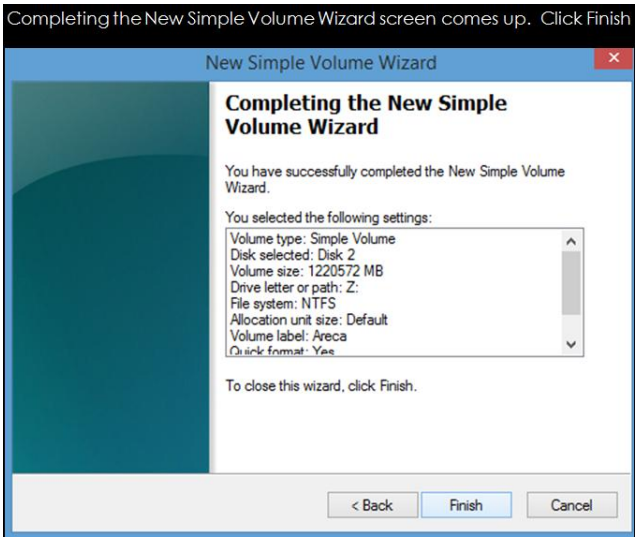
Assign Drive Letter and Click Next.


New Simple Volume Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
Z
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

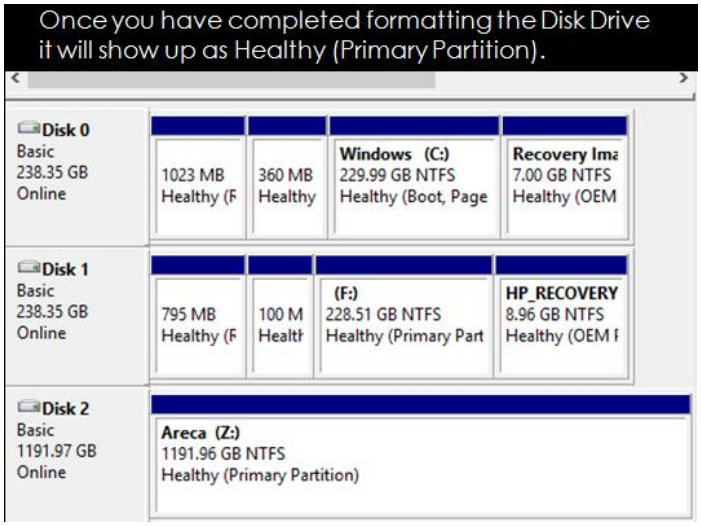
Format Partition . Enter Volume Label.
Select Perform Quick Format. Click OK


New Simple Volume Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this volume, and if so, what settings you want to use.
Do not format this volume
Format this volume with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
Areca
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

Completing the New Simple Volume Wizard screen comes up. Click Finish


New Simple Volume Wizard
Completing the New Simple Volume Wizard
You have successfully completed the New Simple Volume Wizard.
You selected the following settings:
Volume type: Simple Volume
Disk selected: Disk 2
Volume size: 1220572 MB
Drive letter or path: Z:
File system: NTFS
Allocation unit size: Default
Volume label: Areca
Quick format: Yes
To close this wizard, click Finish.
< Back
Finish
Cancel

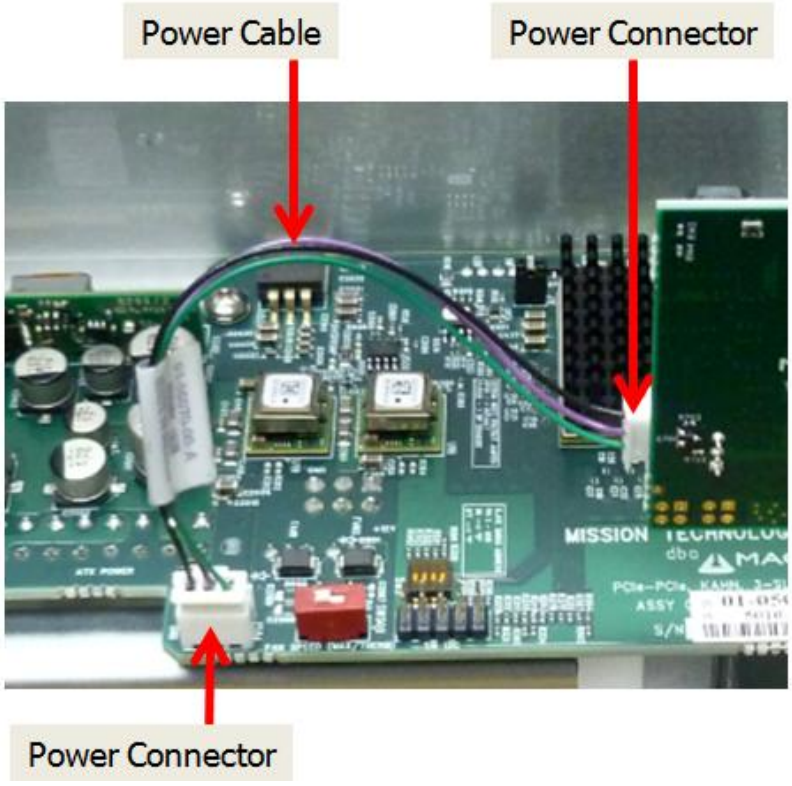
Once you have completed formatting the Disk Drive it will show up as Healthy (Primary Partition).



Chapter 4 Troubleshooting

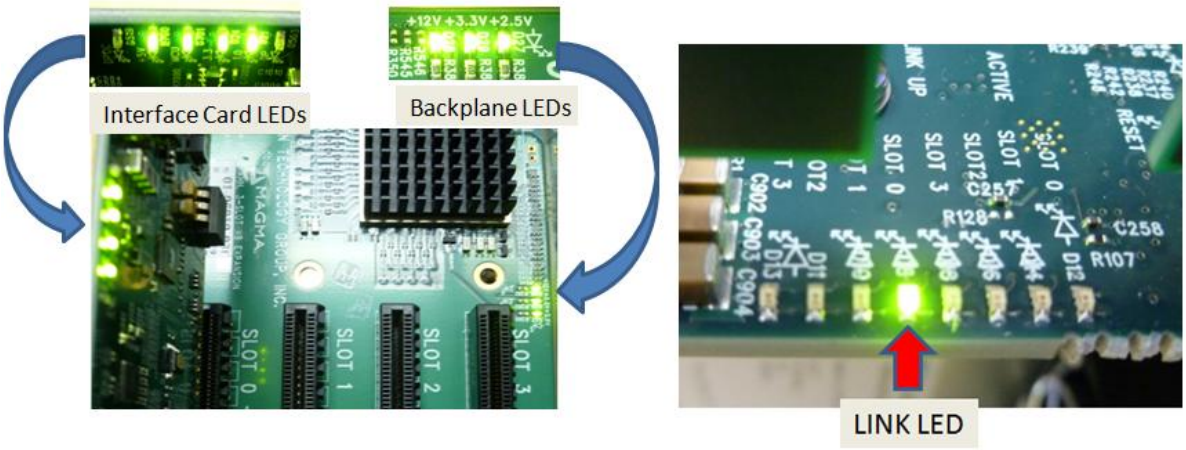
Q: If the Thunderbolt card fails to power up, what should I check?

A: Check the power / stand-by cable; make sure it is firmly connected to the power receptacle of the Thunderbolt Interface card.



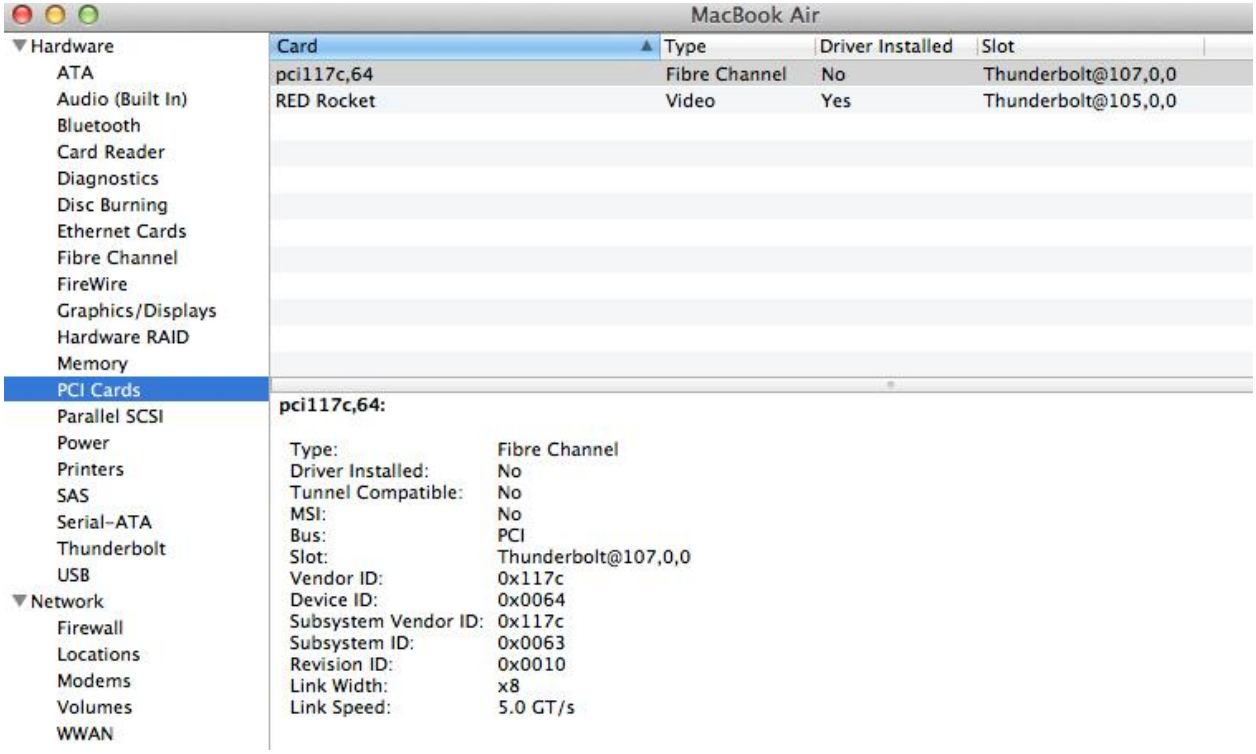
Q: How do I know if Roben-3power supply is working?

A: If the Thunderbolt card is properly seated and connected, there should be 4 green LEDs lit on the Interface card, 3 green LEDs lit on the backplane, and 1 green LINK LED is turned ON as shown below. This picture below applies to Thunderbolt™ 1 expansion unit.



Q: How can I determine if the driver for my PCIe card is Thunderbolt Compatible?

A: Thunderbolt Tunneling is required for MacOS. In Apple System Profile, click on the specific PCIe card in question to see if it's Thunderbolt Tunnel Compatible. If it shows "Yes" then Thunderbolt tunneling has been enabled and it is compatible. If it shows "No", then the driver does not work through Thunderbolt and it is not compatible. Even if the driver is not thunderbolt compatible the 3rd party PCIE card is still visible (as shown from the picture below).



Q. My PCIe card is not getting detected when installed in 1st PCIE slot, what should I do?

A. Turn off the Laptop computer. Disconnect the Magma thunderbolt expansion unit form Laptop by disconnecting the thunderbolt cable. Remove power cord from Magma. Remove and reseat PCIe card. Reconnect the thunderbolt cable to Laptop. Plug-in power cord to Magma. Turn on the Laptop. This should automatically turn on the Magma thunderbolt expansion unit. Check Apple System profiler or Windows Device Manager to see if the PCIe card is detected or not.

Q: Can I daisy chain Roben-3with another Roben-3?

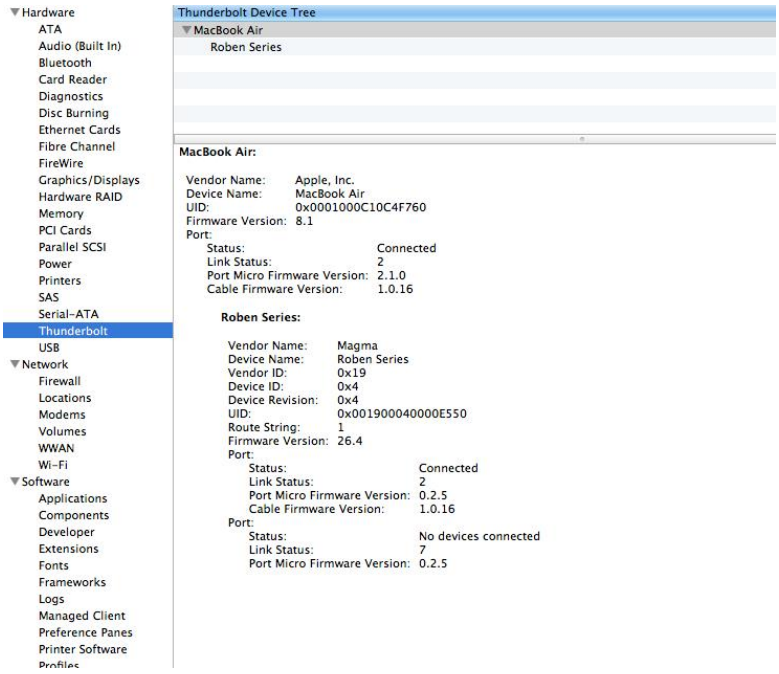
A: Yes, but realize that aggregate bandwidth is limited to 10Gbps through the Thunderbolt port and PCI address and IO space can be limited so the type of cards installed in the chassis may limit the number that can be daisy chained successfully.

If a daisy chain device doesn't work; check to see if the Thunderbolt Cable is connected firmly into the thunderbolt port (on the Magma Thunderbolt Card of Roben-3) and the power supply is also turned ON. Also make sure each Thunderbolt Roben-3 is working and functional before attempting to daisy chain them together.

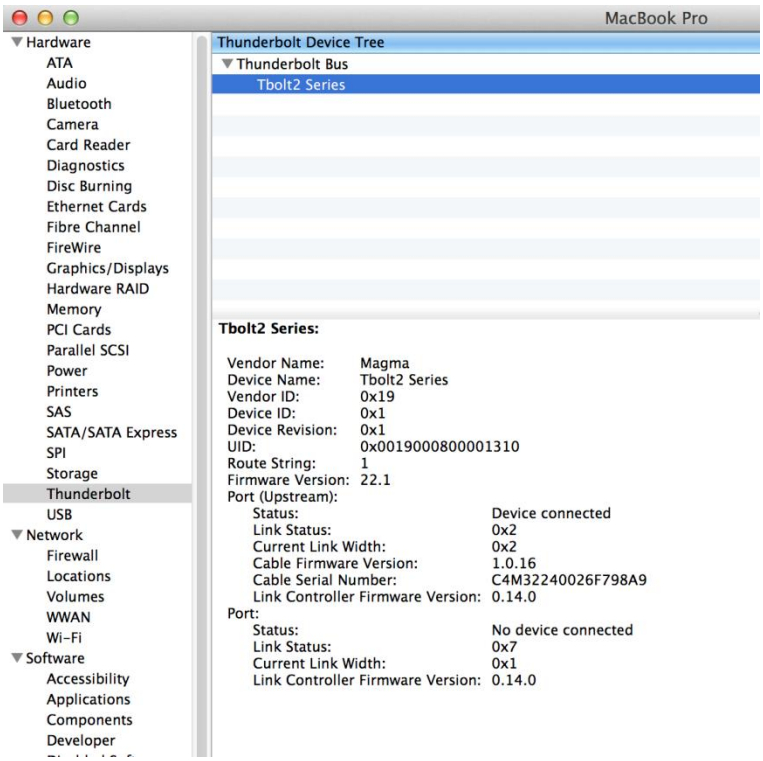
Q: Will Roben-3show up in Apple System Profiler or Windows Device Manager without any PCIe cards installed?

Yes.

In Apple System Profiler **à** Thunderbolt **à** Status: Connected **à** Roben-3. Picture below applies to Thunderbolt™ 1.

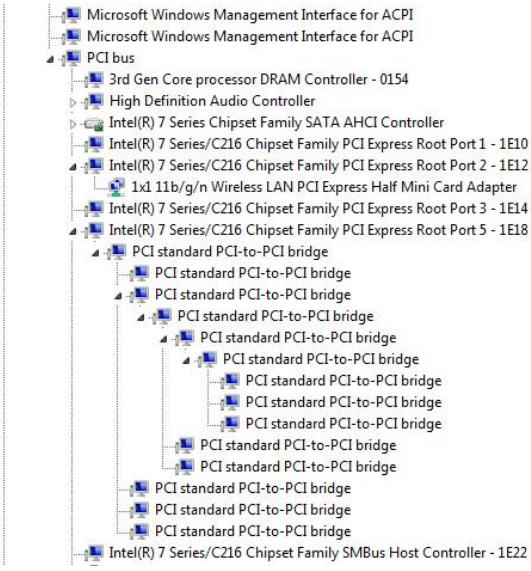


In Apple System Profiler **à** Thunderbolt **à** Status: Connected **à** Roben-3. Picture below applies to Thunderbolt™ 1



In Windows **à** Control Panel **à** Device Manager **à** View by connection

You should see these three PCI-to-PCI bridges. Right click on it and select “Properties”, select Hardware Ids from dropdown list, you should see PCI\Ven_111D


Microsoft Windows Management Interface for ACPI
Microsoft Windows Management Interface for ACPI
PCI bus
3rd Gen Core processor DRAM Controller - 0154
High Definition Audio Controller
Intel(R) 7 Series Chipset Family SATA AHCI Controller
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 2 - 1E12
1x1 11b/g/n Wireless LAN PCI Express Half Mini Card Adapter
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
PCI standard PCI-to-PCI bridge
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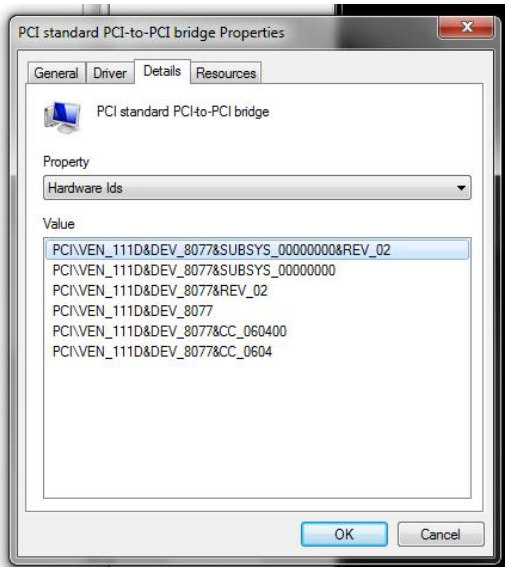
PCI standard PCI-to-PCI bridge
Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22

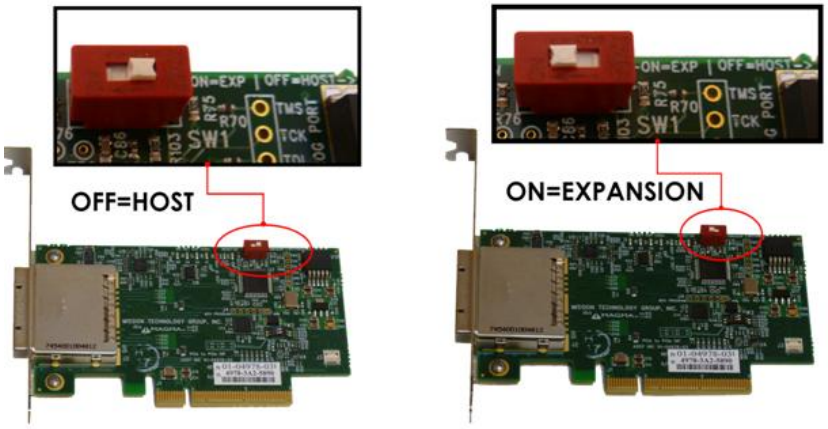


Q: My host computer is having problem linking up with the expansion chassis. I have both interface cards installed and seated firmly in their corresponding slot; one is installed in the host computer PCIe slot and the other one in the expansion PCIE slot. Is there something wrong with the Interface card?

A: When using the 01-04973-03, in which comes in pair, one should be set to OFF-host and the other is set to ON-Exp.

1. There's a Red Dip switch on the interface card that must be set correctly in order to work. The Red Dip switch is labeled SW1.
2. 01-04973-03, SW1 when set to ON=EXP should be installed only inside the Magma Expansion unit.
3. 01-04973-03, SW1 when set to OFF=HOST should be installed inside the host computer.
4. If the 01-04973-03 cards are not set properly your computer won't link up with the Magma expansion.

See photos below:



Chapter 5 How to Get More Help

You can visit the Magma Technical Support FAQ pages on the Internet at: www.magma.com/support/

Contacting Technical Support

Our support department can be reached by fax at (858) 530-2733 or by phone at (858) 530-2511. Support is available Monday through Friday, 8:00 AM to 5:00 PM PT. When contacting MAGMA Technical Support make sure to include the following information:

1. Exact and correct Magma Serial #
2. Service Ticket or Case # (if you already submitted an online request)
3. Computer Type & Model: Operating System
4. Make & Model of PCI/PCIe cards: Application
5. Problem description

When submitting an online technical support request always provide a valid working e-mail address, phone number, shipping address and proper contact name. Check your e-mail for an automated response containing the case # and updates. You can also visit our web site at: www.magma.com/support. For a quick response, use the Technical Support and RMA Request Form available in the Support Section of the website. Simply complete the form with all required information. Please make sure that your problem description is sufficiently detailed to help us understand your problem.

Shipping or Transporting of Expansion Unit with PCI / PCIe cards

Any PCIe cards in should be removed (or not to be installed) prior to shipment to avoid or prevent possible damage. Note: Expansion board and PCIe / PCI cards that arrive damaged in shipment will not be covered under warranty.

Returning Merchandise to MAGMA

If factory service is required, a Service Representative will give you a Return Merchandise Authorization (RMA) number. Put this number and your return address on the shipping label when you return the item(s) for service. Magma will return any product that is not accompanied by an RMA number. Please note that Magma WILL NOT accept COD packages, so be sure to return the product freight and duties-paid.

Ship the well-packaged product to the address below:

Attention:RMA # _____, MAGMA
9918 Via Pasar
San Diego, CA 92126
USA

It is not required, though highly recommended, that you keep the packaging from the original shipment of your Magma product. However, if you return a product to Magma for warranty repair/ replacement or take advantage of the 30-day money back guarantee, you will need to package the product in a manner similar to the manner in which it was received from our plant. Magma cannot be responsible for any physical damage to the product or component pieces of the product (such as the host or expansion interfaces for the expansion chassis) that are damaged due to inadequate packing. Physical damage sustained in such a situation will be repaired at the owner's expense in accordance with Out of Warranty Procedures. Please, protect your investment, a bit more padding in a good box will go a long way to insuring the device is returned to use in the same condition you shipped it in. Please call for an RMA number first.

Appendix A Compliance

FCC

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE

The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interferences or to be noncompliant with the appropriate standards for its intended use.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cetappareilnumériqué de la classe A estconformé à la norme NMB-003 du Canada

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives. Magma will not retest or recertify systems or components that have been reconfigured by customers

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